BIOTECHNOLOGY
SYSTEMS
BRANCH

RAW SEQUENCE LISTING
ERROR REPORT

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Application Serial Number: _09/084,471β_

Source: _1655_

Date Processed by STIC: _6/25/2001_

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1655

RAW SEQUENCE LISTING   DATE: 06/25/2001
PATENT APPLICATION: US/09/084,471B   TIME: 11:40:53

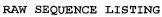Input Set : A:\G150581u.txt
Output Set: N:\CRF3\06252001\I084471B.raw

SEQUENCE LISTING
C--> 5 (1) GENERAL INFORMATION:
     7   (i) APPLICANT: Murphy, Patricia
     8   White, Marga
     9   Olson, Sheri
    10   Yoshikawa, Matthew
    11   Jackson, Geoffrey
    12   Eskanderi, Tara
    13   Schryer, Brenda
    14   Park, Michael
C--> 16   (ii) TITLE OF INVENTION: NOVEL CODING SEQUENCE HAPLOTYPES
    17   OF THE HUMAN BRCA2 GENE
    19   (iii) NUMBER OF SEQUENCES: 133
    21   (iv) CORRESPONDENCE ADDRESS:
    22   (A) ADDRESSEE: Morgan, Lewis & Bockius LLP
    23   (B) STREET: 1800 M St., NW
    24   (C) CITY: Washington
    25   (D) STATE: DC
    26   (E) COUNTRY: USA
    27   (F) ZIP: 20036
    29   (v) COMPUTER READABLE FORM:
    30   (A) MEDIUM TYPE: Diskette
    31   (B) COMPUTER: IBM Compatible
    32   (C) OPERATING SYSTEM: DOS
    33   (D) SOFTWARE: FastSEQ for Windows Version 2.0
    35   (vi) CURRENT APPLICATION DATA:
C--> 36   (A) APPLICATION NUMBER: US/09/084,471B
C--> 37   (B) FILING DATE: 22-May-1998
    38   (C) CLASSIFICATION:
    52   (vii) PRIOR APPLICATION DATA:
    41   (A) APPLICATION NUMBER: US 60/055,784
    42   (B) FILING DATE: 15 August 1997
    45   (A) APPLICATION NUMBER: US 60/064,926
    46   (B) FILING DATE: 07 November 1997
    49   (A) APPLICATION NUMBER: US 60/065,367
    50   (B) FILING DATE: 12 November 1997
    53   (A) APPLICATION NUMBER: US 09/071,715
    54   (B) FILING DATE: 01 May 1998
    56 (viii) ATTORNEY/AGENT INFORMATION:
    57   (A) NAME: Reid G. Adler
    58   (B) REGISTRATION NUMBER: 30,988
    59   (C) REFERENCE/DOCKET NUMBER: 44921-5058-01-US
    61   (ix) TELECOMMUNICATION INFORMATION:
    62   (A) TELEPHONE: 202-467-7000
    63   (B) TELEFAX: 202-467-7258

Does Not Comply
Corrected Diskette Needed

pp 4-10, 13-19,
22-28, 31-37,
40-46

ERRORED SEQUENCES

```
1009 (2) INFORMATION FOR SEQ ID NO: 5:
1011     (i) SEQUENCE CHARACTERISTICS:
1012         (A) LENGTH: 3418 amino acids
1013         (B) TYPE: amino acid
1014         (C) STRANDEDNESS: single
1015         (D) TOPOLOGY: linear
1017    (ii) MOLECULE TYPE: protein
1018     (v) FRAGMENT TYPE: internal
1020    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:
1022 Met Pro Ile Gly Ser Lys Glu Arg Pro Thr Phe Phe Glu Ile Phe Lys
1023  1               5                  10                  15
1024 Thr Arg Cys Asn Lys Ala Asp Leu Gly Pro Ile Ser Leu Asn Trp Phe
1025          20                  25                  30
1026 Glu Glu Leu Ser Ser Glu Ala Pro Pro Tyr Asn Ser Glu Pro Ala Glu
1027          35                  40                  45
1028 Glu Ser Glu His Lys Asn Asn Asn Tyr Glu Pro Asn Leu Phe Lys Thr
1029      50                  55                  60
1030 Pro Gln Arg Lys Pro Ser Tyr Asn Gln Leu Ala Ser Thr Pro Ile Ile
1031 65                  70                  75                  80
1032 Phe Lys Glu Gln Gly Leu Thr Leu Pro Leu Tyr Gln Ser Pro Val Lys
1033              85                  90                  95
1034 Glu Leu Asp Lys Phe Lys Leu Asp Leu Gly Arg Asn Val Pro Asn Ser
1035          100                 105                 110
1036 Arg His Lys Ser Leu Arg Thr Val Lys Thr Lys Met Asp Gln Ala Asp
1037          115                 120                 125
1038 Asp Val Ser Cys Pro Leu Leu Asn Ser Cys Leu Ser Glu Ser Pro Val
1039      130                 135                 140
1040 Val Leu Gln Cys Thr His Val Thr Pro Gln Arg Asp Lys Ser Val Val
1041 145                 150                 155                 160
1042 Cys Gly Ser Leu Phe His Thr Pro Lys Phe Val Lys Gly Arg Gln Thr
1043              165                 170                 175
1044 Pro Lys His Ile Ser Glu Ser Leu Gly Ala Glu Val Asp Pro Asp Met
1045          180                 185                 190
1046 Ser Trp Ser Ser Ser Leu Ala Thr Pro Pro Thr Leu Ser Ser Thr Val
1047          195                 200                 205
1048 Leu Ile Val Arg Asn Glu Glu Ala Ser Glu Thr Val Phe Pro His Asp
1049      210                 215                 220
1050 Thr Thr Ala Asn Val Lys Ser Tyr Phe Ser Asn His Asp Glu Ser Leu
1051 225                 230                 235                 240
1052 Lys Lys Asn Asp Arg Phe Ile Ala Ser Val Thr Asp Ser Glu Asn Thr
1053              245                 250                 255
1054 Asn Gln Arg Glu Ala Ala Ser His Gly Phe Gly Lys Thr Ser Gly Asn
1055          260                 265                 270
1056 Ser Phe Lys Val Asn Ser Cys Lys Asp His Ile Gly Lys Ser Met Pro
1057          275                 280                 285
1058 Asn Val Leu Glu Asp Glu Val Tyr Glu Thr Val Val Asp Thr Ser Glu
1059      290                 295                 300
1060 Glu Asp Ser Phe Ser Leu Cys Phe Ser Lys Cys Arg Thr Lys Asn Leu
```

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1061  305                      310                     315                     320
1062  Gln Lys Val Arg Thr Ser Lys Thr Arg Lys Lys Ile Phe His Glu Ala
1063                      325         .              330                     335
1064  Asn Ala Asp Glu Cys Glu Lys Ser Lys Asn Gln Val Lys Glu Lys Tyr
1065                      340                     345                     350
1066  Ser Phe Val Ser Glu Val Glu Pro Asn Asp Thr Asp Pro Leu Asp Ser
1067              355                     360                     365
1068  Asn Val Ala His Gln Lys Pro Phe Glu Ser Gly Ser Asp Lys Ile Ser
1069          370                     375                     380
1070  Lys Glu Val Val Pro Ser Leu Ala Cys Glu Trp Ser Gln Leu Thr Leu
1071  385                      390                     395                     400
1072  Ser Gly Leu Asn Gly Ala Gln Met Glu Lys Ile Pro Leu Leu His Ile
1073                      405                     410                     415
1074  Ser Ser Cys Asp Gln Asn Ile Ser Glu Lys Asp Leu Leu Asp Thr Glu
1075                      420                     425                     430
1076  Asn Lys Arg Lys Lys Asp Phe Leu Thr Ser Glu Asn Ser Leu Pro Arg
1077              435                     440                     445
1078  Ile Ser Ser Leu Pro Lys Ser Glu Lys Pro Leu Asn Glu Glu Thr Val
1079          450                     455                     460
1080  Val Asn Lys Arg Asp Glu Glu Gln His Leu Glu Ser His Thr Asp Cys
1081  ·465                     470                     475                     480
1082  Ile Leu Ala Val Lys Gln Ala Ile Ser Gly Thr Ser Pro Val Ala Ser
1083                      485                     490                     495
1084  Ser Phe Gln Gly Ile Lys Lys Ser Ile Phe Arg Ile Arg Glu Ser Pro
1085              500                     505                     510
1086  Lys Glu Thr Phe Asn Ala Ser Phe Ser Gly His Met Thr Asp Pro Asn
1087              515                     520                     525
1088  Phe Lys Lys Glu Thr Glu Ala Ser Glu Ser Gly Leu Glu Ile His Thr
1089          530                     535                     540
1090  Val Cys Ser Gln Lys Glu Asp Ser Leu Cys Pro Asn Leu Ile Asp Asn
1091  545                      550                     555 .                   560
1092  Gly Ser Trp Pro Ala Thr Thr Thr Gln Asn Ser Val Ala Leu Lys Asn
1093                      565                     570                     575
1094  Ala Gly Leu Ile Ser Thr Leu Lys Lys Lys Thr Asn Lys Phe Ile Tyr
1095              580                     585                     590
1096  Ala Ile His Asp Glu Thr Ser Tyr Lys Gly Lys Lys Ile Pro Lys Asp
1097              595                     600                     605
1098  Gln Lys Ser Glu Leu Ile Asn Cys Ser Ala Gln Phe Glu Ala Asn Ala
1099          610                     615                     620
1100  Phe Glu Ala Pro Leu Thr Phe Ala Asn Ala Asp Ser Gly Leu Leu His
1101  625                      630                     635                     640
1102  Ser Ser Val Lys Arg Ser Cys Ser Gln Asn Asp Ser Glu Glu Pro Thr
1103                      645                     650                     655
1104  Leu Ser Leu Thr Ser Ser Phe Gly Thr Ile Leu Arg Lys Cys Ser Arg
1105              660                     665                     670
1106  Asn Glu Thr Cys Ser Asn Asn Thr Val Ile Ser Gln Asp Leu Asp Tyr
1107          675                     680                     685
1108  Lys Glu Ala Lys Cys Asn Lys Glu Lys Leu Gln Leu Phe Ile Thr Pro
1109          690                     695                     700
```

RAW SEQUENCE LISTING   DATE: 06/25/2001
PATENT APPLICATION: **US/09/084,471B**   TIME: 11:40:54

Input Set : **A:\Gl50581u.txt**
Output Set: **N:\CRF3\06252001\I084471B.raw**

```
1110    Glu Ala Asp Ser Leu Ser Cys Leu Gln Glu Gly Gln Cys Glu Asn Asp
1111    705             710             715             720
1112    Pro Lys Ser Lys Lys Val Ser Asp Ile Lys Glu Glu Val Leu Ala Ala
1113            725             730             735
1114    Ala Cys His Pro Val Gln His Ser Lys Val Glu Tyr Ser Asp Thr Asp
1115            740             745             750
1116    Phe Gln Ser Gln Lys Ser Leu Leu Tyr Asp His Glu Asn Ala Ser Thr
1117            755             760             765
1118    Leu Ile Leu Thr Pro Thr Ser Lys Asp Val Leu Ser Asn Leu Val Met
1119        770             775             780
1120    Ile Ser Arg Gly Lys Glu Ser Tyr Lys Met Ser Asp Lys Leu Lys Gly
1121    785             790             795             800
1122    Asn Asn Tyr Glu Ser Asp Val Glu Leu Thr Lys Asn Ile Pro Met Glu
1123            805             810             815
1124    Lys Asn Gln Asp Val Cys Ala Leu Asn Glu Asn Tyr Lys Asn Val Glu
1125            820             825             830
1126    Leu Leu Pro Pro Glu Lys Tyr Met Arg Val Ala Ser Pro Ser Arg Lys
1127            835             840             845
1128    Val Gln Phe Asn Gln Asn Thr Asn Leu Arg Val Ile Gln Lys Asn Gln
1129        850             855             860
1130    Glu Glu Thr Thr Ser Ile Ser Lys Ile Thr Val Asn Pro Asp Ser Glu
1131    865             870             875             880
1132    Glu Leu Phe Ser Asp Asn Glu Asn Asn Phe Val Phe Gln Val Ala Asn
1133            885             890             895
1134    Glu Arg Asn Asn Leu Ala Leu Gly Asn Thr Lys Glu Leu His Glu Thr
1135            900             905             910
1136    Asp Leu Thr Cys Val Asn Glu Pro Ile Phe Lys Asn Ser Thr Met Val
1137        915             920             925
1138    Leu Tyr Gly Asp Thr Gly Asp Lys Gln Ala Thr Gln Val Ser Ile Lys
1139        930             935             940
1140    Lys Asp Leu Val Tyr Val Leu Ala Glu Glu Asn Lys Asn Ser Val Lys
1141    945             950             955             960
1142    Gln His Ile Lys Met Thr Leu Gly Gln Asp Leu Lys Ser Asp Ile Ser
1143            965             970             975
1144    Leu Asn Ile Asp Lys Ile Pro Glu Lys Asn Asn Asp Tyr Met Asn Lys
1145            980             985             990
1146    Trp Ala Gly Leu Leu Gly Pro Ile Ser Asn His Ser Phe Gly Gly Ser
1147            995             1000            1005
1148    Phe Arg Thr Ala Ser Asn Lys Glu Ile Lys Leu Ser Glu His Asn Ile
1149        1010            1015            1020
1150    Lys Lys Ser Lys Met Phe Phe Lys Asp Ile Glu Glu Gln Tyr Pro Thr
E--> 1151    1025            1030            1035             104⃝ 1040
1152    Ser Leu Ala Cys Val Glu Ile Val Asn Thr Leu Ala Leu Asp Asn Gln
1153            1045            1050            1055
1154    Lys Lys Leu Ser Lys Pro Gln Ser Ile Asn Thr Val Ser Ala His Leu
1155            1060            1065            1070
1156    Gln Ser Ser Val Val Val Ser Asp Cys Lys Asn Ser His Ile Thr Pro
1157            1075            1080            1085
1158    Gln Met Leu Phe Ser Lys Gln Asp Phe Asn Ser Asn His Asn Leu Thr
```

When numbering the last amino acid on a line, end the number directly below last letter of the amino acid.

Please ensure a space exists between beginning of number and previous amino acid.

l.S. Thr 1040

```
1159       1090              1095              1100
1160    Pro Ser Gln Lys Ala Glu Ile Thr Glu Leu Ser Thr Ile Leu Glu Glu
E--> 1161    1105              1110              1115              (112) 1120
1162    Ser Gly Ser Gln Phe Glu Phe Thr Gln Phe Arg Lys Pro Ser Tyr Ile
1163              1125              1130              1135
1164    Leu Gln Lys Ser Thr Phe Glu Val Pro Glu Asn Gln Met Thr Ile Leu
1165         1140              1145              1150
1166    Lys Thr Thr Ser Glu Glu Cys Arg Asp Ala Asp Leu His Val Ile Met
1167         1155              1160              1165
1168    Asn Ala Pro Ser Ile Gly Gln Val Asp Ser Ser Lys Gln Phe Glu Gly
1169       1170              1175              1180
1170    Thr Val Glu Ile Lys Arg Lys Phe Ala Gly Leu Leu Lys Asn Asp Cys
E--> 1171    1185              1190              1195              (120) 1200
1172    Asn Lys Ser Ala Ser Gly Tyr Leu Thr Asp Glu Asn Glu Val Gly Phe
1173              1205              1210              1215
1174    Arg Gly Phe Tyr Ser Ala His Gly Thr Lys Leu Asn Val Ser Thr Glu
1175              1220              1225              1230
1176    Ala Leu Gln Lys Ala Val Lys Leu Phe Ser Asp Ile Glu Asn Ile Ser
1177         1235              1240              1245
1178    Glu Glu Thr Ser Ala Glu Val His Pro Ile Ser Leu Ser Ser Ser Lys
1179       1250              1255              1260
1180    Cys His Asp Ser Val Val Ser Met Phe Lys Ile Glu Asn His Asn Asp
E--> 1181    1265              1270              1275              128
1182    Lys Thr Val Ser Glu Lys Asn Asn Lys Cys Gln Leu Ile Leu Gln Asn
1183              1285              1290              1295
1184    Asn Ile Glu Met Thr Thr Gly Thr Phe Val Glu Glu Ile Thr Glu Asn
1185              1300              1305              1310
1186    Tyr Lys Arg Asn Thr Glu Asn Glu Asp Asn Lys Tyr Thr Ala Ala Ser
1187         1315              1320              1325
1188    Arg Asn Ser His Asn Leu Glu Phe Asp Gly Ser Asp Ser Ser Lys Asn
1189       1330              1335              1340
1190    Asp Thr Val Cys Ile His Lys Asp Glu Thr Asp Leu Leu Phe Thr Asp
E--> 1191    1345              1350              1355              136
1192    Gln His Asn Ile Cys Leu Lys Leu Ser Gly Gln Phe Met Lys Glu Gly
1193              1365              1370              1375
1194    Asn Thr Gln Ile Lys Glu Asp Leu Ser Asp Leu Thr Phe Leu Glu Val
1195              1380              1385              1390
1196    Ala Lys Ala Gln Glu Ala Cys His Gly Asn Thr Ser Asn Lys Glu Gln
1197         1395              1400              1405
1198    Leu Thr Ala Thr Lys Thr Glu Gln Asn Ile Lys Asp Phe Glu Thr Ser
1199       1410              1415              1420
1200    Asp Thr Phe Phe Gln Thr Ala Ser Gly Lys Asn Ile Ser Val Ala Lys
E--> 1201    1425              1430              1435              144
1202    Glu Ser Phe Asn Lys Ile Val Asn Phe Phe Asp Gln Lys Pro Glu Glu
1203              1445              1450              1455
1204    Leu His Asn Phe Ser Leu Asn Ser Glu Leu His Ser Asp Ile Arg Lys
1205       1460              1465              1470
1206    Asn Lys Met Asp Ile Leu Ser Tyr Glu Glu Thr Asp Ile Val Lys His
1207         1475              1480              1485
```

```
       1208  Lys Ile Leu Lys Glu Ser Val Pro Val Gly Thr Gly Asn Gln Leu Val
       1209      1490              1495              1500
       1210  Thr Phe Gln Gly Gln Pro Glu Arg Asp Glu Lys Ile Lys Glu Pro Thr
E-->   1211  1505              1510              1515              152
       1212  Leu Leu Gly Phe His Thr Ala Ser Gly Lys Lys Val Lys Ile Ala Lys
       1213                  1525              1530              1535
       1214  Glu Ser Leu Asp Lys Val Lys Asn Leu Phe Asp Glu Lys Glu Gln Gly
       1215              1540              1545              1550
       1216  Thr Ser Glu Ile Thr Ser Phe Ser His Gln Trp Ala Lys Thr Leu Lys
       1217          1555              1560              1565
       1218  Tyr Arg Glu Ala Cys Lys Asp Leu Glu Leu Ala Cys Glu Thr Ile Glu
       1219      1570              1575              1580
       1220  Ile Thr Ala Ala Pro Lys Cys Lys Glu Met Gln Asn Ser Leu Asn Asn
E-->   1221  1585              1590              1595              160
       1222  Asp Lys Asn Leu Val Ser Ile Glu Thr Val Val Pro Pro Lys Leu Leu
       1223                  1605              1610              1615
       1224  Ser Asp Asn Leu Cys Arg Gln Thr Glu Asn Leu Lys Thr Ser Lys Ser
       1225                  1620              1625              1630
       1226  Ile Phe Leu Lys Val Lys Val His Glu Asn Val Glu Lys Glu Thr Ala
       1227          1635              1640              1645
       1228  Lys Ser Pro Ala Thr Cys Tyr Thr Asn Gln Ser Pro Tyr Ser Val Ile
       1229      1650              1655              1660
       1230  Glu Asn Ser Ala Leu Ala Phe Tyr Thr Ser Cys Ser Arg Lys Thr Ser
E-->   1231  1665              1670              1675              168
       1232  Val Ser Gln Thr Ser Leu Leu Glu Ala Lys Lys Trp Leu Arg Glu Gly
       1233                  1685              1690              1695
       1234  Ile Phe Asp Gly Gln Pro Glu Arg Ile Asn Thr Ala Asp Tyr Val Gly
       1235              1700              1705              1710
       1236  Asn Tyr Leu Tyr Glu Asn Asn Ser Asn Ser Thr Ile Ala Glu Asn Asp
       1237          1715              1720              1725
       1238  Lys Asn His Leu Ser Glu Lys Gln Asp Thr Tyr Leu Ser Asn Ser Ser
       1239      1730              1735              1740
       1240  Met Ser Asn Ser Tyr Ser Tyr His Ser Asp Glu Val Tyr Asn Asp Ser
E-->   1241  1745              1750              1755              176
       1242  Gly Tyr Leu Ser Lys Asn Lys Leu Asp Ser Gly Ile Glu Pro Val Leu
       1243                  1765              1770              1775
       1244  Lys Asn Val Glu Asp Gln Lys Asn Thr Ser Phe Ser Lys Val Ile Ser
       1245                  1780              1785              1790
       1246  Asn Val Lys Asp Ala Asn Ala Tyr Pro Gln Thr Val Asn Glu Asp Ile
       1247          1795              1800              1805
       1248  Cys Val Glu Glu Leu Val Thr Ser Ser Ser Pro Cys Lys Asn Lys Asn
       1249      1810              1815              1820
       1250  Ala Ala Ile Lys Leu Ser Ile Ser Asn Ser Asn Asn Phe Glu Val Gly
E-->   1251  1825              1830              1835              184
       1252  Pro Pro Ala Phe Arg Ile Ala Ser Gly Lys Ile Val Cys Val Ser His
       1253                  1845              1850              1855
       1254  Glu Thr Ile Lys Lys Val Lys Asp Ile Phe Thr Asp Ser Phe Ser Lys
       1255                  1860              1865              1870
       1256  Val Ile Lys Glu Asn Asn Glu Asn Lys Ser Lys Ile Cys Gln Thr Lys
```

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/084,471B

DATE: 06/25/2001
TIME: 11:40:54

Input Set : A:\G150581u.txt
Output Set: N:\CRF3\06252001\I084471B.raw

```
      1257            1875                1880                1885
      1258   Ile Met Ala Gly Cys Tyr Glu Ala Leu Asp Asp Ser Glu Asp Ile Leu
      1259        1890                1895                1900
      1260   His Asn Ser Leu Asp Asn Asp Glu Cys Ser Thr His Ser His Lys Val
E-->  1261   1905                1910                1915                192
      1262   Phe Ala Asp Ile Gln Ser Glu Glu Ile Leu Gln His Asn Gln Asn Met
      1263                1925                1930                1935
      1264   Ser Gly Leu Glu Lys Val Ser Lys Ile Ser Pro Cys Asp Val Ser Leu
      1265                1940                1945                1950
      1266   Glu Thr Ser Asp Ile Cys Lys Cys Ser Ile Gly Lys Leu His Lys Ser
      1267                1955                1960                1965
      1268   Val Ser Ser Ala Asn Thr Cys Gly Ile Phe Ser Thr Ala Ser Gly Lys
      1269        1970                1975                1980
      1270   Ser Val Gln Val Ser Asp Ala Ser Leu Gln Asn Ala Arg Gln Val Phe
E-->  1271   1985                1990                1995                200
      1272   Ser Glu Ile Glu Asp Ser Thr Lys Gln Val Phe Ser Lys Val Leu Phe
      1273                2005                2010                2015
      1274   Lys Ser Asn Glu His Ser Asp Gln Leu Thr Arg Glu Glu Asn Thr Ala
      1275                2020                2025                2030
      1276   Ile Arg Thr Pro Glu His Leu Ile Ser Gln Lys Gly Phe Ser Tyr Asn
      1277        2035                2040                2045
      1278   Val Val Asn Ser Ser Ala Phe Ser Gly Phe Ser Thr Ala Ser Gly Lys
      1279        2050                2055                2060
      1280   Gln Val Ser Ile Leu Glu Ser Ser Leu His Lys Val Lys Gly Val Leu
E-->  1281   2065                2070                2075                208
      1282   Glu Glu Phe Asp Leu Ile Arg Thr Glu His Ser Leu His Tyr Ser Pro
      1283                2085                2090                2095
      1284   Thr Ser Arg Gln Asn Val Ser Lys Ile Leu Pro Arg Val Asp Lys Arg
      1285                2100                2105                2110
      1286   Asn Pro Glu His Cys Val Asn Ser Glu Met Glu Lys Thr Cys Ser Lys
      1287        2115                2120                2125
      1288   Glu Phe Lys Leu Ser Asn Asn Leu Asn Val Glu Gly Gly Ser Ser Glu
      1289        2130                2135                2140
      1290   Asn Asn His Ser Ile Lys Val Ser Pro Tyr Leu Ser Gln Phe Gln Gln
E-->  1291   2145                2150                2155                216
      1292   Asp Lys Gln Gln Leu Val Leu Gly Thr Lys Val Ser Leu Val Glu Asn
      1293                2165                2170                2175
      1294   Ile His Val Leu Gly Lys Glu Gln Ala Ser Pro Lys Asn Val Lys Met
      1295        2180                2185                2190
      1296   Glu Ile Gly Lys Thr Glu Thr Phe Ser Asp Val Pro Val Lys Thr Asn
      1297        2195                2200                2205
      1298   Ile Glu Val Cys Ser Thr Tyr Ser Lys Asp Ser Glu Asn Tyr Phe Glu
      1299        2210                2215                2220
      1300   Thr Glu Ala Val Glu Ile Ala Lys Ala Phe Met Glu Asp Asp Glu Leu
E-->  1301   2225                2230                2235                224
      1302   Thr Asp Ser Lys Leu Pro Ser His Ala Thr His Ser Leu Phe Thr Cys
      1303                2245                2250                2255
      1304   Pro Glu Asn Glu Glu Met Val Leu Ser Asn Ser Arg Ile Gly Lys Arg
      1305        2260                2265                2270
```

```
      1306  Arg Gly Glu Pro Leu Ile Leu Val Gly Glu Pro Ser Ile Lys Arg Asn
      1307           2275                2280                 2285
      1308  Leu Leu Asn Glu Phe Asp Arg Ile Ile Glu Asn Gln Glu Lys Ser Leu
      1309           2290                2295                2300
      1310  Lys Ala Ser Lys Ser Thr Pro Asp Gly Thr Ile Lys Asp Arg Arg Leu
E--> 1311  2305                 2310                2315                  232
      1312  Phe Met His His Val Ser Leu Glu Pro Ile Thr Cys Val Pro Phe Arg
      1313                 2325                2330                 2335
      1314  Thr Thr Lys Glu Arg Gln Glu Ile Gln Asn Pro Asn Phe Thr Ala Pro
      1315           2340                2345                2350
      1316  Gly Gln Glu Phe Leu Ser Lys Ser His Leu Tyr Glu His Leu Thr Leu
      1317           2355                2360                2365
      1318  Glu Lys Ser Ser Ser Asn Leu Ala Val Ser Gly His Pro Phe Tyr Gln
      1319           2370                2375                2380
      1320  Val Ser Ala Thr Arg Asn Glu Lys Met Arg His Leu Ile Thr Thr Gly
E--> 1321  2385                 2390                2395                  240
      1322  Arg Pro Thr Lys Val Phe Val Pro Pro Phe Lys Thr Lys Ser His Phe
      1323                 2405                2410                 2415
      1324  His Arg Val Glu Gln Cys Val Arg Asn Ile Asn Leu Glu Glu Asn Arg
      1325                 2420                2425                2430
      1326  Gln Lys Gln Asn Ile Asp Gly His Gly Ser Asp Asp Ser Lys Asn Lys
      1327           2435                2440                2445
      1328  Ile Asn Asp Asn Glu Ile His Gln Phe Asn Lys Asn Asn Ser Asn Gln
      1329           2450                2455                2460
      1330  Ala Ala Ala Val Thr Phe Thr Lys Cys Glu Glu Glu Pro Leu Asp Leu
E--> 1331  2465                 2470                2475                  248
      1332  Ile Thr Ser Leu Gln Asn Ala Arg Asp Ile Gln Asp Met Arg Ile Lys
      1333                 2485                2490                2495
      1334  Lys Lys Gln Arg Gln Arg Val Phe Pro Gln Pro Gly Ser Leu Tyr Leu
      1335           2500                2505                2510
      1336  Ala Lys Thr Ser Thr Leu Pro Arg Ile Ser Leu Lys Ala Ala Val Gly
      1337           2515                2520                2525
      1338  Gly Gln Val Pro Ser Ala Cys Ser His Lys Gln Leu Tyr Thr Tyr Gly
      1339           2530                2535                2540
      1340  Val Ser Lys His Cys Ile Lys Ile Asn Ser Lys Asn Ala Glu Ser Phe
E--> 1341  2545                 2550                2555                  256
      1342  Gln Phe His Thr Glu Asp Tyr Phe Gly Lys Glu Ser Leu Trp Thr Gly
      1343                 2565                2570                2575
      1344  Lys Gly Ile Gln Leu Ala Asp Gly Gly Trp Leu Ile Pro Ser Asn Asp
      1345           2580                2585                2590
      1346  Gly Lys Ala Gly Lys Glu Glu Phe Tyr Arg Ala Leu Cys Asp Thr Pro
      1347           2595                2600                2605
      1348  Gly Val Asp Pro Lys Leu Ile Ser Arg Ile Trp Val Tyr Asn His Tyr
      1349           2610                2615                2620
      1350  Arg Trp Ile Ile Trp Lys Leu Ala Ala Met Glu Cys Ala Phe Pro Lys
E--> 1351  2625                 2630                2635                  264
      1352  Glu Phe Ala Asn Arg Cys Leu Ser Pro Glu Arg Val Leu Leu Gln Leu
      1353                 2645                2650                2655
      1354  Lys Tyr Arg Tyr Asp Thr Glu Ile Asp Arg Ser Arg Arg Ser Ala Ile
```

RAW SEQUENCE LISTING   DATE: 06/25/2001
PATENT APPLICATION: US/09/084,471B   TIME: 11:40:54

Input Set : A:\G150581u.txt
Output Set: N:\CRF3\06252001\I084471B.raw

```
      1355            2660            2665            2670
      1356  Lys Lys Ile Met Glu Arg Asp Asp Thr Ala Ala Lys Thr Leu Val Leu
      1357        2675            2680            2685
      1358  Cys Val Ser Asp Ile Ile Ser Leu Ser Ala Asn Ile Ser Glu Thr Ser
      1359      2690            2695            2700
      1360  Ser Asn Lys Thr Ser Ser Ala Asp Thr Gln Lys Val Ala Ile Ile Glu
E--> 1361  2705            2710            2715            272
      1362  Leu Thr Asp Gly Trp Tyr Ala Val Lys Ala Gln Leu Asp Pro Pro Leu
      1363            2725            2730            2735
      1364  Leu Ala Val Leu Lys Asn Gly Arg Leu Thr Val Gly Gln Lys Ile Ile
      1365            2740            2745            2750
      1366  Leu His Gly Ala Glu Leu Val Gly Ser Pro Asp Ala Cys Thr Pro Leu
      1367        2755            2760            2765
      1368  Glu Ala Pro Glu Ser Leu Met Leu Lys Ile Ser Ala Asn Ser Thr Arg
      1369      2770            2775            2780
      1370  Pro Ala Arg Trp Tyr Thr Lys Leu Gly Phe Phe Pro Asp Pro Arg Pro
E--> 1371  2785            2790            2795            280
      1372  Phe Pro Leu Pro Leu Ser Ser Leu Phe Ser Asp Gly Gly Asn Val Gly
      1373            2805            2810            2815
      1374  Cys Val Asp Val Ile Ile Gln Arg Ala Tyr Pro Ile Gln Trp Met Glu
      1375            2820            2825            2830
      1376  Lys Thr Ser Ser Gly Leu Tyr Ile Phe Arg Asn Glu Arg Glu Glu Glu
      1377        2835            2840            2845
      1378  Lys Glu Ala Ala Lys Tyr Val Glu Ala Gln Gln Lys Arg Leu Glu Ala
      1379      2850            2855            2860
      1380  Leu Phe Thr Lys Ile Gln Glu Glu Phe Glu Glu His Glu Glu Asn Thr
E--> 1381  2865            2870            2875            288
      1382  Thr Lys Pro Tyr Leu Pro Ser Arg Ala Leu Thr Arg Gln Gln Val Arg
      1383            2885            2890            2895
      1384  Ala Leu Gln Asp Gly Ala Glu Leu Tyr Glu Ala Val Lys Asn Ala Ala
      1385            2900            2905            2910
      1386  Asp Pro Ala Tyr Leu Glu Gly Tyr Phe Ser Glu Glu Gln Leu Arg Ala
      1387        2915            2920            2925
      1388  Leu Asn Asn His Arg Gln Met Leu Asn Asp Lys Lys Gln Ala Gln Ile
      1389      2930            2935            2940
      1390  Gln Leu Glu Ile Arg Lys Ala Met Glu Ser Ala Glu Gln Lys Glu Gln
E--> 1391  2945            2950            2955            296
      1392  Gly Leu Ser Arg Asp Val Thr Thr Val Trp Lys Leu Arg Ile Val Ser
      1393            2965            2970            2975
      1394  Tyr Ser Lys Lys Glu Lys Asp Ser Val Ile Leu Ser Ile Trp Arg Pro
      1395            2980            2985            2990
      1396  Ser Ser Asp Leu Tyr Ser Leu Leu Thr Glu Gly Lys Arg Tyr Arg Ile
      1397        2995            3000            3005
      1398  Tyr His Leu Ala Thr Ser Lys Ser Lys Ser Lys Ser Glu Arg Ala Asn
      1399      3010            3015            3020
      1400  Ile Gln Leu Ala Ala Thr Lys Lys Thr Gln Tyr Gln Gln Leu Pro Val
E--> 1401  3025            3030            3035            304
      1402  Ser Asp Glu Ile Leu Phe Gln Ile Tyr Gln Pro Arg Glu Pro Leu His
      1403            3045            3050            3055
```

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      1404  Phe Ser Lys Phe Leu Asp Pro Asp Phe Gln Pro Ser Cys Ser Glu Val
      1405          3060              3065              3070
      1406  Asp Leu Ile Gly Phe Val Val Ser Val Val Lys Lys Thr Gly Leu Ala
      1407          3075              3080              3085
      1408  Pro Phe Val Tyr Leu Ser Asp Glu Cys Tyr Asn Leu Leu Ala Ile Lys
      1409      3090              3095              3100
      1410  Phe Trp Ile Asp Leu Asn Glu Asp Ile Ile Lys Pro His Met Leu Ile
E--> 1411  3105              3110              3115                  312
      1412  Ala Ala Ser Asn Leu Gln Trp Arg Pro Glu Ser Lys Ser Gly Leu Leu
      1413              3125              3130              3135
      1414  Thr Leu Phe Ala Gly Asp Phe Ser Val Phe Ser Ala Ser Pro Lys Glu
      1415          3140              3145              3150
      1416  Gly His Phe Gln Glu Thr Phe Asn Lys Met Lys Asn Thr Val Glu Asn
      1417          3155              3160              3165
      1418  Ile Asp Ile Leu Cys Asn Glu Ala Glu Asn Lys Leu Met His Ile Leu
      1419      3170              3175              3180
      1420  His Ala Asn Asp Pro Lys Trp Ser Thr Pro Thr Lys Asp Cys Thr Ser
E--> 1421  3185              3190              3195                  320
      1422  Gly Pro Tyr Thr Ala Gln Ile Ile Pro Gly Thr Gly Asn Lys Leu Leu
      1423              3205              3210              3215
      1424  Met Ser Ser Pro Asn Cys Glu Ile Tyr Tyr Gln Ser Pro Leu Ser Leu
      1425              3220              3225              3230
      1426  Cys Met Ala Lys Arg Lys Ser Val Ser Thr Pro Val Ser Ala Gln Met
      1427          3235              3240              3245
      1428  Thr Ser Lys Ser Cys Lys Gly Glu Lys Glu Ile Asp Asp Gln Lys Asn
      1429      3250              3255              3260
      1430  Cys Lys Lys Arg Arg Ala Leu Asp Phe Leu Ser Arg Leu Pro Leu Pro
E--> 1431  3265              3270              3275                  328
      1432  Pro Pro Val Ser Pro Ile Cys Thr Phe Val Ser Pro Ala Ala Gln Lys
      1433              3285              3290              3295
      1434  Ala Phe Gln Pro Pro Arg Ser Cys Gly Thr Lys Tyr Glu Thr Pro Ile
      1435          3300              3305              3310
      1436  Lys Lys Lys Glu Leu Asn Ser Pro Gln Met Thr Pro Phe Lys Lys Phe
      1437          3315              3320              3325
      1438  Asn Glu Ile Ser Leu Leu Glu Ser Asn Ser Ile Ala Asp Glu Glu Leu
      1439      3330              3335              3340
      1440  Ala Leu Ile Asn Thr Gln Ala Leu Leu Ser Gly Ser Thr Gly Glu Lys
E--> 1441  3345              3350              3355                  336
      1442  Gln Phe Ile Ser Val Ser Glu Ser Thr Arg Thr Ala Pro Thr Ser Ser
      1443              3365              3370              3375
      1444  Glu Asp Tyr Leu Arg Leu Lys Arg Arg Cys Thr Thr Ser Leu Ile Lys
      1445          3380              3385              3390
      1446  Glu Gln Glu Ser Ser Gln Ala Ser Thr Glu Glu Cys Glu Lys Asn Lys
      1447          3395              3400              3405
      1448  Gln Asp Thr Ile Thr Thr Lys Lys Tyr Ile
      1449      3410              3415
      2337  (2) INFORMATION FOR SEQ ID NO: 7:
      2339      (i) SEQUENCE CHARACTERISTICS:
      2340          (A) LENGTH: 3418 amino acids
```

Input Set : A:\G150581u.txt
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```
2341              (B) TYPE: amino acid
2342              (C) STRANDEDNESS: single
2343              (D) TOPOLOGY: linear
2345       (ii) MOLECULE TYPE: protein
2346        (v) FRAGMENT TYPE: internal
2347       (ix) FEATURE:
2348              (A) NAME/KEY: variation
2349              (B) LOCATION: 1132
2350              (D) OTHER INFORMATION: Xaa = Lys (from codon AAR,
2351 R = A or G).
2353       (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:
2355  Met Pro Ile Gly Ser Lys Glu Arg Pro Thr Phe Phe Glu Ile Phe Lys
2356   1               5                  10                  15
2357  Thr Arg Cys Asn Lys Ala Asp Leu Gly Pro Ile Ser Leu Asn Trp Phe
2358           20                  25                  30
2359  Glu Glu Leu Ser Ser Glu Ala Pro Pro Tyr Asn Ser Glu Pro Ala Glu
2360           35                  40                  45
2361  Glu Ser Glu His Lys Asn Asn Asn Tyr Glu Pro Asn Leu Phe Lys Thr
2362       50                  55                  60
2363  Pro Gln Arg Lys Pro Ser Tyr Asn Gln Leu Ala Ser Thr Pro Ile Ile
2364  65                  70                  75                  80
2365  Phe Lys Glu Gln Gly Leu Thr Leu Pro Leu Tyr Gln Ser Pro Val Lys
2366               85                  90                  95
2367  Glu Leu Asp Lys Phe Lys Leu Asp Leu Gly Arg Asn Val Pro Asn Ser
2368           100                 105                 110
2369  Arg His Lys Ser Leu Arg Thr Val Lys Thr Lys Met Asp Gln Ala Asp
2370           115                 120                 125
2371  Asp Val Ser Cys Pro Leu Leu Asn Ser Cys Leu Ser Glu Ser Pro Val
2372           130                 135                 140
2373  Val Leu Gln Cys Thr His Val Thr Pro Gln Arg Asp Lys Ser Val Val
2374  145                 150                 155                 160
2375  Cys Gly Ser Leu Phe His Thr Pro Lys Phe Val Lys Gly Arg Gln Thr
2376               165                 170                 175
2377  Pro Lys His Ile Ser Glu Ser Leu Gly Ala Glu Val Asp Pro Asp Met
2378           180                 185                 190
2379  Ser Trp Ser Ser Ser Leu Ala Thr Pro Pro Thr Leu Ser Ser Thr Val
2380           195                 200                 205
2381  Leu Ile Val Arg Asn Glu Glu Ala Ser Glu Thr Val Phe Pro His Asp
2382           210                 215                 220
2383  Thr Thr Ala Asn Val Lys Ser Tyr Phe Ser Asn His Asp Glu Ser Leu
2384  225                 230                 235                 240
2385  Lys Lys Asn Asp Arg Phe Ile Ala Ser Val Thr Asp Ser Glu Asn Thr
2386               245                 250                 255
2387  Asn Gln Arg Glu Ala Ala Ser His Gly Phe Gly Lys Thr Ser Gly Asn
2388           260                 265                 270
2389  Ser Phe Lys Val Asn Ser Cys Lys Asp His Ile Gly Lys Ser Met Pro
2390           275                 280                 285
2391  Asn Val Leu Glu Asp Glu Val Tyr Glu Thr Val Val Asp Thr Ser Glu
2392           290                 295                 300
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2393  Glu Asp Ser Phe Ser Leu Cys Phe Ser Lys Cys Arg Thr Lys Asn Leu
2394  305             310                 315                 320
2395  Gln Lys Val Arg Thr Ser Lys Thr Arg Lys Lys Ile Phe His Glu Ala
2396              325                 330                 335
2397  Asn Ala Asp Glu Cys Glu Lys Ser Lys Asn Gln Val Lys Glu Lys Tyr
2398              340                 345                 350
2399  Ser Phe Val Ser Glu Val Glu Pro Asn Asp Thr Asp Pro Leu Asp Ser
2400              355                 360                 365
2401  Asn Val Ala His Gln Lys Pro Phe Glu Ser Gly Ser Asp Lys Ile Ser
2402      370                 375                 380
2403  Lys Glu Val Val Pro Ser Leu Ala Cys Glu Trp Ser Gln Leu Thr Leu
2404  385                 390                 395                 400
2405  Ser Gly Leu Asn Gly Ala Gln Met Glu Lys Ile Pro Leu Leu His Ile
2406              405                 410                 415
2407  Ser Ser Cys Asp Gln Asn Ile Ser Glu Lys Asp Leu Leu Asp Thr Glu
2408              420                 425                 430
2409  Asn Lys Arg Lys Lys Asp Phe Leu Thr Ser Glu Asn Ser Leu Pro Arg
2410              435                 440                 445
2411  Ile Ser Ser Leu Pro Lys Ser Glu Lys Pro Leu Asn Glu Glu Thr Val
2412      450                 455                 460
2413  Val Asn Lys Arg Asp Glu Glu Gln His Leu Glu Ser His Thr Asp Cys
2414  465                 470                 475                 480
2415  Ile Leu Ala Val Lys Gln Ala Ile Ser Gly Thr Ser Pro Val Ala Ser
2416              485                 490                 495
2417  Ser Phe Gln Gly Ile Lys Lys Ser Ile Phe Arg Ile Arg Glu Ser Pro
2418              500                 505                 510
2419  Lys Glu Thr Phe Asn Ala Ser Phe Ser Gly His Met Thr Asp Pro Asn
2420              515                 520                 525
2421  Phe Lys Lys Glu Thr Glu Ala Ser Glu Ser Gly Leu Glu Ile His Thr
2422      530                 535                 540
2423  Val Cys Ser Gln Lys Glu Asp Ser Leu Cys Pro Asn Leu Ile Asp Asn
2424  545                 550                 555                 560
2425  Gly Ser Trp Pro Ala Thr Thr Thr Gln Asn Ser Val Ala Leu Lys Asn
2426              565                 570                 575
2427  Ala Gly Leu Ile Ser Thr Leu Lys Lys Lys Thr Asn Lys Phe Ile Tyr
2428              580                 585                 590
2429  Ala Ile His Asp Glu Thr Ser Tyr Lys Gly Lys Lys Ile Pro Lys Asp
2430              595                 600                 605
2431  Gln Lys Ser Glu Leu Ile Asn Cys Ser Ala Gln Phe Glu Ala Asn Ala
2432      610                 615                 620
2433  Phe Glu Ala Pro Leu Thr Phe Ala Asn Ala Asp Ser Gly Leu Leu His
2434  625                 630                 635                 640
2435  Ser Ser Val Lys Arg Ser Cys Ser Gln Asn Asp Ser Glu Glu Pro Thr
2436              645                 650                 655
2437  Leu Ser Leu Thr Ser Ser Phe Gly Thr Ile Leu Arg Lys Cys Ser Arg
2438              660                 665                 670
2439  Asn Glu Thr Cys Ser Asn Asn Thr Val Ile Ser Gln Asp Leu Asp Tyr
2440              675                 680                 685
2441  Lys Glu Ala Lys Cys Asn Lys Glu Lys Leu Gln Leu Phe Ile Thr Pro
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2442        690                    695                    700
2443  Glu Ala Asp Ser Leu Ser Cys Leu Gln Glu Gly Gln Cys Glu Asn Asp
2444  705                    710                    715                    720
2445  Pro Lys Ser Lys Lys Val Ser Asp Ile Lys Glu Glu Val Leu Ala Ala
2446                725                    730                    735
2447  Ala Cys His Pro Val Gln His Ser Lys Val Glu Tyr Ser Asp Thr Asp
2448                740                    745                    750
2449  Phe Gln Ser Gln Lys Ser Leu Leu Tyr Asp His Glu Asn Ala Ser Thr
2450                755                    760                    765
2451  Leu Ile Leu Thr Pro Thr Ser Lys Asp Val Leu Ser Asn Leu Val Met
2452        770                    775                    780
2453  Ile Ser Arg Gly Lys Glu Ser Tyr Lys Met Ser Asp Lys Leu Lys Gly
2454  785                    790                    795                    800
2455  Asn Asn Tyr Glu Ser Asp Val Glu Leu Thr Lys Asn Ile Pro Met Glu
2456                805                    810                    815
2457  Lys Asn Gln Asp Val Cys Ala Leu Asn Glu Asn Tyr Lys Asn Val Glu
2458                820                    825                    830
2459  Leu Leu Pro Pro Glu Lys Tyr Met Arg Val Ala Ser Pro Ser Arg Lys
2460                835                    840                    845
2461  Val Gln Phe Asn Gln Asn Thr Asn Leu Arg Val Ile Gln Lys Asn Gln
2462        850                    855                    860
2463  Glu Glu Thr Thr Ser Ile Ser Lys Ile Thr Val Asn Pro Asp Ser Glu
2464  865                    870                    875                    880
2465  Glu Leu Phe Ser Asp Asn Glu Asn Asn Phe Val Phe Gln Val Ala Asn
2466                885                    890                    895
2467  Glu Arg Asn Asn Leu Ala Leu Gly Asn Thr Lys Glu Leu His Glu Thr
2468                900                    905                    910
2469  Asp Leu Thr Cys Val Asn Glu Pro Ile Phe Lys Asn Ser Thr Met Val
2470                915                    920                    925
2471  Leu Tyr Gly Asp Thr Gly Asp Lys Gln Ala Thr Gln Val Ser Ile Lys
2472        930                    935                    940
2473  Lys Asp Leu Val Tyr Val Leu Ala Glu Glu Asn Lys Asn Ser Val Lys
2474  945                    950                    955                    960
2475  Gln His Ile Lys Met Thr Leu Gly Gln Asp Leu Lys Ser Asp Ile Ser
2476                965                    970                    975
2477  Leu Asn Ile Asp Lys Ile Pro Glu Lys Asn Asn Asp Tyr Met Asn Lys
2478                980                    985                    990
2479  Trp Ala Gly Leu Leu Gly Pro Ile Ser Asn His Ser Phe Gly Gly Ser
2480                995                    1000                   1005
2481  Phe Arg Thr Ala Ser Asn Lys Glu Ile Lys Leu Ser Glu His Asn Ile
2482        1010                   1015                   1020
2483  Lys Lys Ser Lys Met Phe Phe Lys Asp Ile Glu Glu Gln Tyr Pro Thr
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2485  Ser Leu Ala Cys Val Glu Ile Val Asn Thr Leu Ala Leu Asp Asn Gln
2486                1045                   1050                   1055
2487  Lys Lys Leu Ser Lys Pro Gln Ser Ile Asn Thr Val Ser Ala His Leu
2488                1060                   1065                   1070
2489  Gln Ser Ser Val Val Val Ser Asp Cys Lys Asn Ser His Ile Thr Pro
2490                1075                   1080                   1085
```

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Input Set : A:\G150581u.txt
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```
        2491  Gln Met Leu Phe Ser Lys Gln Asp Phe Asn Ser Asn His Asn Leu Thr
        2492      1090                1095                1100
        2493  Pro Ser Gln Lys Ala Glu Ile Thr Glu Leu Ser Thr Ile Leu Glu Glu
E-->    2494  1105                1110                1115                112
W-->    2495  Ser Gly Ser Gln Phe Glu Phe Thr Gln Phe Arg Xaa Pro Ser Tyr Ile
        2496                  1125                1130                1135
        2497  Leu Gln Lys Ser Thr Phe Glu Val Pro Glu Asn Gln Met Thr Ile Leu
        2498              1140                1145                1150
        2499  Lys Thr Thr Ser Glu Glu Cys Arg Asp Ala Asp Leu His Val Ile Met
        2500          1155                1160                1165
        2501  Asn Ala Pro Ser Ile Gly Gln Val Asp Ser Ser Lys Gln Phe Glu Gly
        2502      1170                1175                1180
        2503  Thr Val Glu Ile Lys Arg Lys Phe Ala Gly Leu Leu Lys Asn Asp Cys
E-->    2504  1185                1190                1195                120
        2505  Asn Lys Ser Ala Ser Gly Tyr Leu Thr Asp Glu Asn Glu Val Gly Phe
        2506                  1205                1210                1215
        2507  Arg Gly Phe Tyr Ser Ala His Gly Thr Lys Leu Asn Val Ser Thr Glu
        2508                  1220                1225                1230
        2509  Ala Leu Gln Lys Ala Val Lys Leu Phe Ser Asp Ile Glu Asn Ile Ser
        2510          1235                1240                1245
        2511  Glu Glu Thr Ser Ala Glu Val His Pro Ile Ser Leu Ser Ser Ser Lys
        2512          1250                1255                1260
        2513  Cys His Asp Ser Val Val Ser Met Phe Lys Ile Glu Asn His Asn Asp
E-->    2514  1265                1270                1275                128
        2515  Lys Thr Val Ser Glu Lys Asn Asn Lys Cys Gln Leu Ile Leu Gln Asn
        2516                  1285                1290                1295
        2517  Asn Ile Glu Met Thr Thr Gly Thr Phe Val Glu Glu Ile Thr Glu Asn
        2518              1300                1305                1310
        2519  Tyr Lys Arg Asn Thr Glu Asn Glu Asp Asn Lys Tyr Thr Ala Ala Ser
        2520          1315                1320                1325
        2521  Arg Asn Ser His Asn Leu Glu Phe Asp Gly Ser Asp Ser Ser Lys Asn
        2522      1330                1335                1340
        2523  Asp Thr Val Cys Ile His Lys Asp Glu Thr Asp Leu Leu Phe Thr Asp
E-->    2524  1345                1350                1355                136
        2525  Gln His Asn Ile Cys Leu Lys Leu Ser Gly Gln Phe Met Lys Glu Gly
        2526                  1365                1370                1375
        2527  Asn Thr Gln Ile Lys Glu Asp Leu Ser Asp Leu Thr Phe Leu Glu Val
        2528              1380                1385                1390
        2529  Ala Lys Ala Gln Glu Ala Cys His Gly Asn Thr Ser Asn Lys Glu Gln
        2530          1395                1400                1405
        2531  Leu Thr Ala Thr Lys Thr Glu Gln Asn Ile Lys Asp Phe Glu Thr Ser
        2532      1410                1415                1420
        2533  Asp Thr Phe Phe Gln Thr Ala Ser Gly Lys Asn Ile Ser Val Ala Lys
E-->    2534  1425                1430                1435                144
        2535  Glu Ser Phe Asn Lys Ile Val Asn Phe Phe Asp Gln Lys Pro Glu Glu
        2536                  1445                1450                1455
        2537  Leu His Asn Phe Ser Leu Asn Ser Glu Leu His Ser Asp Ile Arg Lys
        2538              1460                1465                1470
        2539  Asn Lys Met Asp Ile Leu Ser Tyr Glu Glu Thr Asp Ile Val Lys His
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      2540          1475          1480          1485
      2541  Lys Ile Leu Lys Glu Ser Val Pro Val Gly Thr Gly Asn Gln Leu Val
      2542      1490          1495          1500
      2543  Thr Phe Gln Gly Gln Pro Glu Arg Asp Glu Lys Ile Lys Glu Pro Thr
E--> 2544  1505          1510          1515          152
      2545  Leu Leu Gly Phe His Thr Ala Ser Gly Lys Lys Val Lys Ile Ala Lys
      2546          1525          1530          1535
      2547  Glu Ser Leu Asp Lys Val Lys Asn Leu Phe Asp Glu Lys Glu Gln Gly
      2548          1540          1545          1550
      2549  Thr Ser Glu Ile Thr Ser Phe Ser His Gln Trp Ala Lys Thr Leu Lys
      2550          1555          1560          1565
      2551  Tyr Arg Glu Ala Cys Lys Asp Leu Glu Leu Ala Cys Glu Thr Ile Glu
      2552      1570          1575          1580
      2553  Ile Thr Ala Ala Pro Lys Cys Lys Glu Met Gln Asn Ser Leu Asn Asn
E--> 2554  1585          1590          1595          160
      2555  Asp Lys Asn Leu Val Ser Ile Glu Thr Val Val Pro Pro Lys Leu Leu
      2556          1605          1610          1615
      2557  Ser Asp Asn Leu Cys Arg Gln Thr Glu Asn Leu Lys Thr Ser Lys Ser
      2558          1620          1625          1630
      2559  Ile Phe Leu Lys Val Lys Val His Glu Asn Val Glu Lys Glu Thr Ala
      2560          1635          1640          1645
      2561  Lys Ser Pro Ala Thr Cys Tyr Thr Asn Gln Ser Pro Tyr Ser Val Ile
      2562      1650          1655          1660
      2563  Glu Asn Ser Ala Leu Ala Phe Tyr Thr Ser Cys Ser Arg Lys Thr Ser
E--> 2564  1665          1670          1675          168
      2565  Val Ser Gln Thr Ser Leu Leu Glu Ala Lys Lys Trp Leu Arg Glu Gly
      2566          1685          1690          1695
      2567  Ile Phe Asp Gly Gln Pro Glu Arg Ile Asn Thr Ala Asp Tyr Val Gly
      2568          1700          1705          1710
      2569  Asn Tyr Leu Tyr Glu Asn Asn Ser Asn Ser Thr Ile Ala Glu Asn Asp
      2570          1715          1720          1725
      2571  Lys Asn His Leu Ser Glu Lys Gln Asp Thr Tyr Leu Ser Asn Ser Ser
      2572      1730          1735          1740
      2573  Met Ser Asn Ser Tyr Ser Tyr His Ser Asp Glu Val Tyr Asn Asp Ser
E--> 2574  1745          1750          1755          176
      2575  Gly Tyr Leu Ser Lys Asn Lys Leu Asp Ser Gly Ile Glu Pro Val Leu
      2576          1765          1770          1775
      2577  Lys Asn Val Glu Asp Gln Lys Asn Thr Ser Phe Ser Lys Val Ile Ser
      2578          1780          1785          1790
      2579  Asn Val Lys Asp Ala Asn Ala Tyr Pro Gln Thr Val Asn Glu Asp Ile
      2580          1795          1800          1805
      2581  Cys Val Glu Glu Leu Val Thr Ser Ser Ser Pro Cys Lys Asn Lys Asn
      2582      1810          1815          1820
      2583  Ala Ala Ile Lys Leu Ser Ile Ser Asn Ser Asn Asn Phe Glu Val Gly
E--> 2584  1825          1830          1835          184
      2585  Pro Pro Ala Phe Arg Ile Ala Ser Gly Lys Ile Val Cys Val Ser His
      2586          1845          1850          1855
      2587  Glu Thr Ile Lys Lys Val Lys Asp Ile Phe Thr Asp Ser Phe Ser Lys
      2588          1860          1865          1870
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        2589  Val Ile Lys Glu Asn Asn Glu Asn Lys Ser Lys Ile Cys Gln Thr Lys
        2590       1875              1880              1885
        2591  Ile Met Ala Gly Cys Tyr Glu Ala Leu Asp Asp Ser Glu Asp Ile Leu
        2592       1890              1895              1900
        2593  His Asn Ser Leu Asp Asn Asp Glu Cys Ser Thr His Ser His Lys Val
E-->    2594  1905              1910              1915              192
        2595  Phe Ala Asp Ile Gln Ser Glu Glu Ile Leu Gln His Asn Gln Asn Met
        2596                   1925              1930              1935
        2597  Ser Gly Leu Glu Lys Val Ser Lys Ile Ser Pro Cys Asp Val Ser Leu
        2598                   1940              1945              1950
        2599  Glu Thr Ser Asp Ile Cys Lys Cys Ser Ile Gly Lys Leu His Lys Ser
        2600       1955              1960              1965
        2601  Val Ser Ser Ala Asn Thr Cys Gly Ile Phe Ser Thr Ala Ser Gly Lys
        2602       1970              1975              1980
        2603  Ser Val Gln Val Ser Asp Ala Ser Leu Gln Asn Ala Arg Gln Val Phe
E-->    2604  1985              1990              1995              200
        2605  Ser Glu Ile Glu Asp Ser Thr Lys Gln Val Phe Ser Lys Val Leu Phe
        2606                   2005              2010              2015
        2607  Lys Ser Asn Glu His Ser Asp Gln Leu Thr Arg Glu Glu Asn Thr Ala
        2608                   2020              2025              2030
        2609  Ile Arg Thr Pro Glu His Leu Ile Ser Gln Lys Gly Phe Ser Tyr Asn
        2610            2035              2040              2045
        2611  Val Val Asn Ser Ser Ala Phe Ser Gly Phe Ser Thr Ala Ser Gly Lys
        2612       2050              2055              2060
        2613  Gln Val Ser Ile Leu Glu Ser Ser Leu His Lys Val Lys Gly Val Leu
E-->    2614  2065              2070              2075              208
        2615  Glu Glu Phe Asp Leu Ile Arg Thr Glu His Ser Leu His Tyr Ser Pro
        2616                   2085              2090              2095
        2617  Thr Ser Arg Gln Asn Val Ser Lys Ile Leu Pro Arg Val Asp Lys Arg
        2618            2100              2105              2110
        2619  Asn Pro Glu His Cys Val Asn Ser Glu Met Glu Lys Thr Cys Ser Lys
        2620       2115              2120              2125
        2621  Glu Phe Lys Leu Ser Asn Asn Leu Asn Val Glu Gly Gly Ser Ser Glu
        2622       2130              2135              2140
        2623  Asn Asn His Ser Ile Lys Val Ser Pro Tyr Leu Ser Gln Phe Gln Gln
E-->    2624  2145              2150              2155              216
        2625  Asp Lys Gln Gln Leu Val Leu Gly Thr Lys Val Ser Leu Val Glu Asn
        2626                   2165              2170              2175
        2627  Ile His Val Leu Gly Lys Glu Gln Ala Ser Pro Lys Asn Val Lys Met
        2628            2180              2185              2190
        2629  Glu Ile Gly Lys Thr Glu Thr Phe Ser Asp Val Pro Val Lys Thr Asn
        2630            2195              2200              2205
        2631  Ile Glu Val Cys Ser Thr Tyr Ser Lys Asp Ser Glu Asn Tyr Phe Glu
        2632       2210              2215              2220
        2633  Thr Glu Ala Val Glu Ile Ala Lys Ala Phe Met Glu Asp Asp Glu Leu
E-->    2634  2225              2230              2235              224
        2635  Thr Asp Ser Lys Leu Pro Ser His Ala Thr His Ser Leu Phe Thr Cys
        2636                   2245              2250              2255
        2637  Pro Glu Asn Glu Glu Met Val Leu Ser Asn Ser Arg Ile Gly Lys Arg
```

RAW SEQUENCE LISTING   DATE: 06/25/2001
PATENT APPLICATION: US/09/084,471B   TIME: 11:40:54

Input Set : A:\G150581u.txt
Output Set: N:\CRF3\06252001\I084471B.raw

```
      2638                2260                2265                2270
      2639    Arg Gly Glu Pro Leu Ile Leu Val Gly Glu Pro Ser Ile Lys Arg Asn
      2640                2275                2280                2285
      2641    Leu Leu Asn Glu Phe Asp Arg Ile Ile Glu Asn Gln Glu Lys Ser Leu
      2642       2290                2295                2300
      2643    Lys Ala Ser Lys Ser Thr Pro Asp Gly Thr Ile Lys Asp Arg Arg Leu
E--> 2644    2305                2310                2315                232
      2645    Phe Met His His Val Ser Leu Glu Pro Ile Thr Cys Val Pro Phe Arg
      2646                2325                2330                2335
      2647    Thr Thr Lys Glu Arg Gln Glu Ile Gln Asn Pro Asn Phe Thr Ala Pro
      2648                2340                2345                2350
      2649    Gly Gln Glu Phe Leu Ser Lys Ser His Leu Tyr Glu His Leu Thr Leu
      2650                2355                2360                2365
      2651    Glu Lys Ser Ser Ser Asn Leu Ala Val Ser Gly His Pro Phe Tyr Gln
      2652       2370                2375                2380
      2653    Val Ser Ala Thr Arg Asn Glu Lys Met Arg His Leu Ile Thr Thr Gly
E--> 2654    2385                2390                2395                240
      2655    Arg Pro Thr Lys Val Phe Val Pro Pro Phe Lys Thr Lys Ser His Phe
      2656                2405                2410                2415
      2657    His Arg Val Glu Gln Cys Val Arg Asn Ile Asn Leu Glu Glu Asn Arg
      2658                2420                2425                2430
      2659    Gln Lys Gln Asn Ile Asp Gly His Gly Ser Asp Asp Ser Lys Asn Lys
      2660                2435                2440                2445
      2661    Ile Asn Asp Asn Glu Ile His Gln Phe Asn Lys Asn Asn Ser Asn Gln
      2662       2450                2455                2460
      2663    Ala Ala Ala Val Thr Phe Thr Lys Cys Glu Glu Glu Pro Leu Asp Leu
E--> 2664    2465                2470                2475                248
      2665    Ile Thr Ser Leu Gln Asn Ala Arg Asp Ile Gln Asp Met Arg Ile Lys
      2666                2485                2490                2495
      2667    Lys Lys Gln Arg Gln Arg Val Phe Pro Gln Pro Gly Ser Leu Tyr Leu
      2668                2500                2505                2510
      2669    Ala Lys Thr Ser Thr Leu Pro Arg Ile Ser Leu Lys Ala Ala Val Gly
      2670       2515                2520                2525
      2671    Gly Gln Val Pro Ser Ala Cys Ser His Lys Gln Leu Tyr Thr Tyr Gly
      2672       2530                2535                2540
      2673    Val Ser Lys His Cys Ile Lys Ile Asn Ser Lys Asn Ala Glu Ser Phe
E--> 2674    2545                2550                2555                256
      2675    Gln Phe His Thr Glu Asp Tyr Phe Gly Lys Glu Ser Leu Trp Thr Gly
      2676                2565                2570                2575
      2677    Lys Gly Ile Gln Leu Ala Asp Gly Gly Trp Leu Ile Pro Ser Asn Asp
      2678                2580                2585                2590
      2679    Gly Lys Ala Gly Lys Glu Glu Phe Tyr Arg Ala Leu Cys Asp Thr Pro
      2680       2595                2600                2605
      2681    Gly Val Asp Pro Lys Leu Ile Ser Arg Ile Trp Val Tyr Asn His Tyr
      2682       2610                2615                2620
      2683    Arg Trp Ile Ile Trp Lys Leu Ala Ala Met Glu Cys Ala Phe Pro Lys
E--> 2684    2625                2630                2635                264
      2685    Glu Phe Ala Asn Arg Cys Leu Ser Pro Glu Arg Val Leu Leu Gln Leu
      2686                2645                2650                2655
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          2687  Lys Tyr Arg Tyr Asp Thr Glu Ile Asp Arg Ser Arg Arg Ser Ala Ile
          2688            2660                2665                2670
          2689  Lys Lys Ile Met Glu Arg Asp Asp Thr Ala Ala Lys Thr Leu Val Leu
          2690            2675                2680                2685
          2691  Cys Val Ser Asp Ile Ile Ser Leu Ser Ala Asn Ile Ser Glu Thr Ser
          2692       2690                2695                2700
          2693  Ser Asn Lys Thr Ser Ser Ala Asp Thr Gln Lys Val Ala Ile Ile Glu
E--> 2694  2705                2710                2715                272
          2695  Leu Thr Asp Gly Trp Tyr Ala Val Lys Ala Gln Leu Asp Pro Pro Leu
          2696            2725                2730                2735
          2697  Leu Ala Val Leu Lys Asn Gly Arg Leu Thr Val Gly Gln Lys Ile Ile
          2698            2740                2745                2750
          2699  Leu His Gly Ala Glu Leu Val Gly Ser Pro Asp Ala Cys Thr Pro Leu
          2700            2755                2760                2765
          2701  Glu Ala Pro Glu Ser Leu Met Leu Lys Ile Ser Ala Asn Ser Thr Arg
          2702       2770                2775                2780
          2703  Pro Ala Arg Trp Tyr Thr Lys Leu Gly Phe Phe Pro Asp Pro Arg Pro
E--> 2704  2785                2790                2795                280
          2705  Phe Pro Leu Pro Leu Ser Ser Leu Phe Ser Asp Gly Gly Asn Val Gly
          2706            2805                2810                2815
          2707  Cys Val Asp Val Ile Ile Gln Arg Ala Tyr Pro Ile Gln Trp Met Glu
          2708            2820                2825                2830
          2709  Lys Thr Ser Ser Gly Leu Tyr Ile Phe Arg Asn Glu Arg Glu Glu Glu
          2710       2835                2840                2845
          2711  Lys Glu Ala Ala Lys Tyr Val Glu Ala Gln Gln Lys Arg Leu Glu Ala
          2712       2850                2855                2860
          2713  Leu Phe Thr Lys Ile Gln Glu Glu Phe Glu Glu His Glu Glu Asn Thr
E--> 2714  2865                2870                2875                288
          2715  Thr Lys Pro Tyr Leu Pro Ser Arg Ala Leu Thr Arg Gln Gln Val Arg
          2716            2885                2890                2895
          2717  Ala Leu Gln Asp Gly Ala Glu Leu Tyr Glu Ala Val Lys Asn Ala Ala
          2718            2900                2905                2910
          2719  Asp Pro Ala Tyr Leu Glu Gly Tyr Phe Ser Glu Glu Gln Leu Arg Ala
          2720       2915                2920                2925
          2721  Leu Asn Asn His Arg Gln Met Leu Asn Asp Lys Lys Gln Ala Gln Ile
          2722       2930                2935                2940
          2723  Gln Leu Glu Ile Arg Lys Ala Met Glu Ser Ala Glu Gln Lys Glu Gln
E--> 2724  2945                2950                2955                296
          2725  Gly Leu Ser Arg Asp Val Thr Thr Val Trp Lys Leu Arg Ile Val Ser
          2726            2965                2970                2975
          2727  Tyr Ser Lys Lys Glu Lys Asp Ser Val Ile Leu Ser Ile Trp Arg Pro
          2728            2980                2985                2990
          2729  Ser Ser Asp Leu Tyr Ser Leu Leu Thr Glu Gly Lys Arg Tyr Arg Ile
          2730       2995                3000                3005
          2731  Tyr His Leu Ala Thr Ser Lys Ser Lys Ser Lys Ser Glu Arg Ala Asn
          2732       3010                3015                3020
          2733  Ile Gln Leu Ala Ala Thr Lys Lys Thr Gln Tyr Gln Gln Leu Pro Val
E--> 2734  3025                3030                3035                304
          2735  Ser Asp Glu Ile Leu Phe Gln Ile Tyr Gln Pro Arg Glu Pro Leu His
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       2736                 3045            3050            3055
       2737  Phe Ser Lys Phe Leu Asp Pro Asp Phe Gln Pro Ser Cys Ser Glu Val
       2738           3060            3065            3070
       2739  Asp Leu Ile Gly Phe Val Val Ser Val Val Lys Lys Thr Gly Leu Ala
       2740           3075            3080            3085
       2741  Pro Phe Val Tyr Leu Ser Asp Glu Cys Tyr Asn Leu Leu Ala Ile Lys
       2742           3090            3095            3100
       2743  Phe Trp Ile Asp Leu Asn Glu Asp Ile Ile Lys Pro His Met Leu Ile
E-->   2744  3105            3110            3115            312
       2745  Ala Ala Ser Asn Leu Gln Trp Arg Pro Glu Ser Lys Ser Gly Leu Leu
       2746           3125            3130            3135
       2747  Thr Leu Phe Ala Gly Asp Phe Ser Val Phe Ser Ala Ser Pro Lys Glu
       2748           3140            3145            3150
       2749  Gly His Phe Gln Glu Thr Phe Asn Lys Met Lys Asn Thr Val Glu Asn
       2750           3155            3160            3165
       2751  Ile Asp Ile Leu Cys Asn Glu Ala Glu Asn Lys Leu Met His Ile Leu
       2752           3170            3175            3180
       2753  His Ala Asn Asp Pro Lys Trp Ser Thr Pro Thr Lys Asp Cys Thr Ser
E-->   2754  3185            3190            3195            320
       2755  Gly Pro Tyr Thr Ala Gln Ile Ile Pro Gly Thr Gly Asn Lys Leu Leu
       2756           3205            3210            3215
       2757  Met Ser Ser Pro Asn Cys Glu Ile Tyr Tyr Gln Ser Pro Leu Ser Leu
       2758           3220            3225            3230
       2759  Cys Met Ala Lys Arg Lys Ser Val Ser Thr Pro Val Ser Ala Gln Met
       2760           3235            3240            3245
       2761  Thr Ser Lys Ser Cys Lys Gly Glu Lys Glu Ile Asp Asp Gln Lys Asn
       2762           3250            3255            3260
       2763  Cys Lys Lys Arg Arg Ala Leu Asp Phe Leu Ser Arg Leu Pro Leu Pro
E-->   2764  3265            3270            3275            328
       2765  Pro Pro Val Ser Pro Ile Cys Thr Phe Val Ser Pro Ala Ala Gln Lys
       2766           3285            3290            3295
       2767  Ala Phe Gln Pro Pro Arg Ser Cys Gly Thr Lys Tyr Glu Thr Pro Ile
       2768           3300            3305            3310
       2769  Lys Lys Lys Glu Leu Asn Ser Pro Gln Met Thr Pro Phe Lys Lys Phe
       2770           3315            3320            3325
       2771  Asn Glu Ile Ser Leu Leu Glu Ser Asn Ser Ile Ala Asp Glu Glu Leu
       2772           3330            3335            3340
       2773  Ala Leu Ile Asn Thr Gln Ala Leu Leu Ser Gly Ser Thr Gly Glu Lys
E-->   2774  3345            3350            3355            336
       2775  Gln Phe Ile Ser Val Ser Glu Ser Thr Arg Thr Ala Pro Thr Ser Ser
       2776           3365            3370            3375
       2777  Glu Asp Tyr Leu Arg Leu Lys Arg Arg Cys Thr Thr Ser Leu Ile Lys
       2778           3380            3385            3390
       2779  Glu Gln Glu Ser Ser Gln Ala Ser Thr Glu Glu Cys Glu Lys Asn Lys
       2780           3395            3400            3405
       2781  Gln Asp Thr Ile Thr Thr Lys Lys Tyr Ile
       2782     3410            3415
       3666  (2) INFORMATION FOR SEQ ID NO: 9:
       3668      (i) SEQUENCE CHARACTERISTICS:
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RAW SEQUENCE LISTING   DATE: 06/25/2001
PATENT APPLICATION: US/09/084,471B   TIME: 11:40:54

Input Set : A:\G150581u.txt
Output Set: N:\CRF3\06252001\I084471B.raw

3669		(A) LENGTH: 3418 amino acids
3670		(B) TYPE: amino acid
3671		(C) STRANDEDNESS: single
3672		(D) TOPOLOGY: linear
3674	(ii)	MOLECULE TYPE: protein
3675	(v)	FRAGMENT TYPE: internal
3677	(xi)	SEQUENCE DESCRIPTION: SEQ ID NO: 9:

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3679   Met Pro Ile Gly Ser Lys Glu Arg Pro Thr Phe Phe Glu Ile Phe Lys
3680   1               5                   10                  15
3681   Thr Arg Cys Asn Lys Ala Asp Leu Gly Pro Ile Ser Leu Asn Trp Phe
3682               20                  25                  30
3683   Glu Glu Leu Ser Ser Glu Ala Pro Pro Tyr Asn Ser Glu Pro Ala Glu
3684           35                  40                  45
3685   Glu Ser Glu His Lys Asn Asn Asn Tyr Glu Pro Asn Leu Phe Lys Thr
3686       50                  55                  60
3687   Pro Gln Arg Lys Pro Ser Tyr Asn Gln Leu Ala Ser Thr Pro Ile Ile
3688   65                  70                  75                  80
3689   Phe Lys Glu Gln Gly Leu Thr Leu Pro Leu Tyr Gln Ser Pro Val Lys
3690               85                  90                  95
3691   Glu Leu Asp Lys Phe Lys Leu Asp Leu Gly Arg Asn Val Pro Asn Ser
3692               100                 105                 110
3693   Arg His Lys Ser Leu Arg Thr Val Lys Thr Lys Met Asp Gln Ala Asp
3694           115                 120                 125
3695   Asp Val Ser Cys Pro Leu Leu Asn Ser Cys Leu Ser Glu Ser Pro Val
3696       130                 135                 140
3697   Val Leu Gln Cys Thr His Val Thr Pro Gln Arg Asp Lys Ser Val Val
3698   145                 150                 155                 160
3699   Cys Gly Ser Leu Phe His Thr Pro Lys Phe Val Lys Gly Arg Gln Thr
3700               165                 170                 175
3701   Pro Lys His Ile Ser Glu Ser Leu Gly Ala Glu Val Asp Pro Asp Met
3702               180                 185                 190
3703   Ser Trp Ser Ser Ser Leu Ala Thr Pro Pro Thr Leu Ser Ser Thr Val
3704               195                 200                 205
3705   Leu Ile Val Arg Asn Glu Glu Ala Ser Glu Thr Val Phe Pro His Asp
3706           210                 215                 220
3707   Thr Thr Ala Asn Val Lys Ser Tyr Phe Ser Asn His Asp Glu Ser Leu
3708   225                 230                 235                 240
3709   Lys Lys Asn Asp Arg Phe Ile Ala Ser Val Thr Asp Ser Glu Asn Thr
3710               245                 250                 255
3711   Asn Gln Arg Glu Ala Ala Ser His Gly Phe Gly Lys Thr Ser Gly Asn
3712               260                 265                 270
3713   Ser Phe Lys Val Asn Ser Cys Lys Asp His Ile Gly Lys Ser Met Pro
3714           275                 280                 285
3715   His Val Leu Glu Asp Glu Val Tyr Glu Thr Val Val Asp Thr Ser Glu
3716       290                 295                 300
3717   Glu Asp Ser Phe Ser Leu Cys Phe Ser Lys Cys Arg Thr Lys Asn Leu
3718   305                 310                 315                 320
3719   Gln Lys Val Arg Thr Ser Lys Thr Arg Lys Lys Ile Phe His Glu Ala
3720               325                 330                 335
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3721  Asn Ala Asp Glu Cys Glu Lys Ser Lys Asn Gln Val Lys Glu Lys Tyr
3722              340                 345                 350
3723  Ser Phe Val Ser Glu Val Glu Pro Asn Asp Thr Asp Pro Leu Asp Ser
3724              355                 360                 365
3725  Asn Val Ala Asn Gln Lys Pro Phe Glu Ser Gly Ser Asp Lys Ile Ser
3726      370                 375                 380
3727  Lys Glu Val Val Pro Ser Leu Ala Cys Glu Trp Ser Gln Leu Thr Leu
3728  385                 390                 395                 400
3729  Ser Gly Leu Asn Gly Ala Gln Met Glu Lys Ile Pro Leu Leu His Ile
3730              405                 410                 415
3731  Ser Ser Cys Asp Gln Asn Ile Ser Glu Lys Asp Leu Leu Asp Thr Glu
3732              420                 425                 430
3733  Asn Lys Arg Lys Lys Asp Phe Leu Thr Ser Glu Asn Ser Leu Pro Arg
3734              435                 440                 445
3735  Ile Ser Ser Leu Pro Lys Ser Glu Lys Pro Leu Asn Glu Glu Thr Val
3736      450                 455                 460
3737  Val Asn Lys Arg Asp Glu Glu Gln His Leu Glu Ser His Thr Asp Cys
3738  465                 470                 475                 480
3739  Ile Leu Ala Val Lys Gln Ala Ile Ser Gly Thr Ser Pro Val Ala Ser
3740              485                 490                 495
3741  Ser Phe Gln Gly Ile Lys Lys Ser Ile Phe Arg Ile Arg Glu Ser Pro
3742              500                 505                 510
3743  Lys Glu Thr Phe Asn Ala Ser Phe Ser Gly His Met Thr Asp Pro Asn
3744              515                 520                 525
3745  Phe Lys Lys Glu Thr Glu Ala Ser Glu Ser Gly Leu Glu Ile His Thr
3746              530                 535                 540
3747  Val Cys Ser Gln Lys Glu Asp Ser Leu Cys Pro Asn Leu Ile Asp Asn
3748  545                 550                 555                 560
3749  Gly Ser Trp Pro Ala Thr Thr Thr Gln Asn Ser Val Ala Leu Lys Asn
3750              565                 570                 575
3751  Ala Gly Leu Ile Ser Thr Leu Lys Lys Lys Thr Asn Lys Phe Ile Tyr
3752              580                 585                 590
3753  Ala Ile His Asp Glu Thr Ser Tyr Lys Gly Lys Lys Ile Pro Lys Asp
3754              595                 600                 605
3755  Gln Lys Ser Glu Leu Ile Asn Cys Ser Ala Gln Phe Glu Ala Asn Ala
3756      610                 615                 620
3757  Phe Glu Ala Pro Leu Thr Phe Ala Asn Ala Asp Ser Gly Leu Leu His
3758  625                 630                 635                 640
3759  Ser Ser Val Lys Arg Ser Cys Ser Gln Asn Asp Ser Glu Glu Pro Thr
3760              645                 650                 655
3761  Leu Ser Leu Thr Ser Ser Phe Gly Thr Ile Leu Arg Lys Cys Ser Arg
3762              660                 665                 670
3763  Asn Glu Thr Cys Ser Asn Asn Thr Val Ile Ser Gln Asp Leu Asp Tyr
3764              675                 680                 685
3765  Lys Glu Ala Lys Cys Asn Lys Glu Lys Leu Gln Leu Phe Ile Thr Pro
3766      690                 695                 700
3767  Glu Ala Asp Ser Leu Ser Cys Leu Gln Glu Gly Gln Cys Glu Asn Asp
3768  705                 710                 715                 720
3769  Pro Lys Ser Lys Lys Val Ser Asp Ile Lys Glu Glu Val Leu Ala Ala
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3770                    725                    730                    735
3771   Ala Cys His Pro Val Gln His Ser Lys Val Glu Tyr Ser Asp Thr Asp
3772               740                    745                    750
3773   Phe Gln Ser Gln Lys Ser Leu Leu Tyr Asp His Glu Asn Ala Ser Thr
3774           755                    760                    765
3775   Leu Ile Leu Thr Pro Thr Ser Lys Asp Val Leu Ser Asn Leu Val Met
3776       770                    775                    780
3777   Ile Ser Arg Gly Lys Glu Ser Tyr Lys Met Ser Asp Lys Leu Lys Gly
3778   785                    790                    795                    800
3779   Asn Asn Tyr Glu Ser Asp Val Glu Leu Thr Lys Asn Ile Pro Met Glu
3780                    805                    810                    815
3781   Lys Asn Gln Asp Val Cys Ala Leu Asn Glu Asn Tyr Lys Asn Val Glu
3782               820                    825                    830
3783   Leu Leu Pro Pro Glu Lys Tyr Met Arg Val Ala Ser Pro Ser Arg Lys
3784           835                    840                    845
3785   Val Gln Phe Asn Gln Asn Thr Asn Leu Arg Val Ile Gln Lys Asn Gln
3786       850                    855                    860
3787   Glu Glu Thr Thr Ser Ile Ser Lys Ile Thr Val Asn Pro Asp Ser Glu
3788   865                    870                    875                    880
3789   Glu Leu Phe Ser Asp Asn Glu Asn Asn Phe Val Phe Gln Val Ala Asn
3790                    885                    890                    895
3791   Glu Arg Asn Asn Leu Ala Leu Gly Asn Thr Lys Glu Leu His Glu Thr
3792               900                    905                    910
3793   Asp Leu Thr Cys Val Asn Glu Pro Ile Phe Lys Asn Ser Thr Met Val
3794           915                    920                    925
3795   Leu Tyr Gly Asp Thr Gly Asp Lys Gln Ala Thr Gln Val Ser Ile Lys
3796           930                    935                    940
3797   Lys Asp Leu Val Tyr Val Leu Ala Glu Glu Asn Lys Asn Ser Val Lys
3798   945                    950                    955                    960
3799   Gln His Ile Lys Met Thr Leu Gly Gln Asp Leu Lys Ser Asp Ile Ser
3800                    965                    970                    975
3801   Leu Asn Ile Asp Lys Ile Pro Glu Lys Asn Asn Asp Tyr Met Asp Lys
3802               980                    985                    990
3803   Trp Ala Gly Leu Leu Gly Pro Ile Ser Asn His Ser Phe Gly Gly Ser
3804           995                    1000                   1005
3805   Phe Arg Thr Ala Ser Asn Lys Glu Ile Lys Leu Ser Glu His Asn Ile
3806       1010                   1015                   1020
3807   Lys Lys Ser Lys Met Phe Phe Lys Asp Ile Glu Glu Gln Tyr Pro Thr
E-->3808   1025                   1030                   1035           (104)/1040
3809   Ser Leu Ala Cys Val Glu Ile Val Asn Thr Leu Ala Leu Asp Asn Gln
3810               1045                   1050                   1055
3811   Lys Lys Leu Ser Lys Pro Gln Ser Ile Asn Thr Val Ser Ala His Leu
3812           1060                   1065                   1070
3813   Gln Ser Ser Val Val Val Ser Asp Cys Lys Asn Ser His Ile Thr Pro
3814           1075                   1080                   1085
3815   Gln Met Leu Phe Ser Lys Gln Asp Phe Asn Ser Asn His Asn Leu Thr
3816       1090                   1095                   1100
3817   Pro Ser Gln Lys Ala Glu Ile Thr Glu Leu Ser Thr Ile Leu Glu Glu
E-->3818   1105                   1110                   1115           (112)/1120
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      3819  Ser Gly Ser Gln Phe Glu Phe Thr Gln Phe Arg Lys Pro Ser Tyr Ile
      3820              1125              1130              1135
      3821  Leu Gln Lys Ser Thr Phe Glu Val Pro Glu Asn Gln Met Thr Ile Leu
      3822          1140              1145              1150
      3823  Lys Thr Thr Ser Glu Glu Cys Arg Asp Ala Asp Leu His Val Ile Met
      3824          1155              1160              1165
      3825  Asn Ala Pro Ser Ile Gly Gln Val Asp Ser Ser Lys Gln Phe Glu Gly
      3826      1170              1175              1180
      3827  Thr Val Glu Ile Lys Arg Lys Phe Ala Gly Leu Leu Lys Asn Asp Cys
E-->  3828  1185              1190              1195              120
      3829  Asn Lys Ser Ala Ser Gly Tyr Leu Thr Asp Glu Asn Glu Val Gly Phe
      3830              1205              1210              1215
      3831  Arg Gly Phe Tyr Ser Ala His Gly Thr Lys Leu Asn Val Ser Thr Glu
      3832              1220              1225              1230
      3833  Ala Leu Gln Lys Ala Val Lys Leu Phe Ser Asp Ile Glu Asn Ile Ser
      3834          1235              1240              1245
      3835  Glu Glu Thr Ser Ala Glu Val His Pro Ile Ser Leu Ser Ser Ser Lys
      3836      1250              1255              1260
      3837  Cys His Asp Ser Val Val Ser Met Phe Lys Ile Glu Asn His Asn Asp
E-->  3838  1265              1270              1275              128
      3839  Lys Thr Val Ser Glu Lys Asn Asn Lys Cys Gln Leu Ile Leu Gln Asn
      3840              1285              1290              1295
      3841  Asn Ile Glu Met Thr Thr Gly Thr Phe Val Glu Glu Ile Thr Glu Asn
      3842              1300              1305              1310
      3843  Tyr Lys Arg Asn Thr Glu Asn Glu Asp Asn Lys Tyr Thr Ala Ala Ser
      3844          1315              1320              1325
      3845  Arg Asn Ser His Asn Leu Glu Phe Asp Gly Ser Asp Ser Ser Lys Asn
      3846      1330              1335              1340
      3847  Asp Thr Val Cys Ile His Lys Asp Glu Thr Asp Leu Leu Phe Thr Asp
E-->  3848  1345              1350              1355              136
      3849  Gln His Asn Ile Cys Leu Lys Leu Ser Gly Gln Phe Met Lys Glu Gly
      3850              1365              1370              1375
      3851  Asn Thr Gln Ile Lys Glu Asp Leu Ser Asp Leu Thr Phe Leu Glu Val
      3852              1380              1385              1390
      3853  Ala Lys Ala Gln Glu Ala Cys His Gly Asn Thr Ser Asn Lys Glu Gln
      3854          1395              1400              1405
      3855  Leu Thr Ala Thr Lys Thr Glu Gln Asn Ile Lys Asp Phe Glu Thr Ser
      3856      1410              1415              1420
      3857  Asp Thr Phe Phe Gln Thr Ala Ser Gly Lys Asn Ile Ser Val Ala Lys
E-->  3858  1425              1430              1435              144
      3859  Glu Ser Phe Asn Lys Ile Val Asn Phe Phe Asp Gln Lys Pro Glu Glu
      3860              1445              1450              1455
      3861  Leu His Asn Phe Ser Leu Asn Ser Glu Leu His Ser Asp Ile Arg Lys
      3862              1460              1465              1470
      3863  Asn Lys Met Asp Ile Leu Ser Tyr Glu Glu Thr Asp Ile Val Lys His
      3864          1475              1480              1485
      3865  Lys Ile Leu Lys Glu Ser Val Pro Val Gly Thr Gly Asn Gln Leu Val
      3866      1490              1495              1500
      3867  Thr Phe Gln Gly Gln Pro Glu Arg Asp Glu Lys Ile Lys Glu Pro Thr
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E--> 3868  1505                  1510                 1515                    152
     3869  Leu Leu Gly Phe His Thr Ala Ser Gly Lys Lys Val Lys Ile Ala Lys
     3870                    1525                 1530                    1535
     3871  Glu Ser Leu Asp Lys Val Lys Asn Leu Phe Asp Glu Lys Glu Gln Gly
     3872                    1540                 1545                    1550
     3873  Thr Ser Glu Ile Thr Ser Phe Ser His Gln Trp Ala Lys Thr Leu Lys
     3874                    1555                 1560                    1565
     3875  Tyr Arg Glu Ala Cys Lys Asp Leu Glu Leu Ala Cys Glu Thr Ile Glu
     3876          1570                 1575                 1580
     3877  Ile Thr Ala Ala Pro Lys Cys Lys Glu Met Gln Asn Ser Leu Asn Asn
E--> 3878  1585                  1590                 1595                    160
     3879  Asp Lys Asn Leu Val Ser Ile Glu Thr Val Val Pro Pro Lys Leu Leu
     3880                    1605                 1610                    1615
     3881  Ser Asp Asn Leu Cys Arg Gln Thr Glu Asn Leu Lys Thr Ser Lys Ser
     3882                    1620                 1625                    1630
     3883  Ile Phe Leu Lys Val Lys Val His Glu Asn Val Glu Lys Glu Thr Ala
     3884          1635                 1640                 1645
     3885  Lys Ser Pro Ala Thr Cys Tyr Thr Asn Gln Ser Pro Tyr Ser Val Ile
     3886          1650                 1655                 1660
     3887  Glu Asn Ser Ala Leu Ala Phe Tyr Thr Ser Cys Ser Arg Lys Thr Ser
E--> 3888  1665                  1670                 1675                    168
     3889  Val Ser Gln Thr Ser Leu Leu Glu Ala Lys Lys Trp Leu Arg Glu Gly
     3890                    1685                 1690                    1695
     3891  Ile Phe Asp Gly Gln Pro Glu Arg Ile Asn Thr Ala Asp Tyr Val Gly
     3892                    1700                 1705                    1710
     3893  Asn Tyr Leu Tyr Glu Asn Asn Ser Asn Ser Thr Ile Ala Glu Asn Asp
     3894          1715                 1720                 1725
     3895  Lys Asn His Leu Ser Glu Lys Gln Asp Thr Tyr Leu Ser Asn Ser Ser
     3896          1730                 1735                 1740
     3897  Met Ser Asn Ser Tyr Ser Tyr His Ser Asp Glu Val Tyr Asn Asp Ser
E--> 3898  1745                  1750                 1755                    176
     3899  Gly Tyr Leu Ser Lys Asn Lys Leu Asp Ser Gly Ile Glu Pro Val Leu
     3900                    1765                 1770                    1775
     3901  Lys Asn Val Glu Asp Gln Lys Asn Thr Ser Phe Ser Lys Val Ile Ser
     3902                    1780                 1785                    1790
     3903  Asn Val Lys Asp Ala Asn Ala Tyr Pro Gln Thr Val Asn Glu Asp Ile
     3904                    1795                 1800                    1805
     3905  Cys Val Glu Glu Leu Val Thr Ser Ser Ser Pro Cys Lys Asn Lys Asn
     3906          1810                 1815                 1820
     3907  Ala Ala Ile Lys Leu Ser Ile Ser Asn Ser Asn Asn Phe Glu Val Gly
E--> 3908  1825                  1830                 1835                    184
     3909  Pro Pro Ala Phe Arg Ile Ala Ser Gly Lys Ile Val Cys Val Ser His
     3910                    1845                 1850                    1855
     3911  Glu Thr Ile Lys Val Lys Asp Ile Phe Thr Asp Ser Phe Ser Lys
     3912                    1860                 1865                    1870
     3913  Val Ile Lys Glu Asn Asn Glu Asn Lys Ser Lys Ile Cys Gln Thr Lys
     3914          1875                 1880                 1885
     3915  Ile Met Ala Gly Cys Tyr Glu Ala Leu Asp Asp Ser Glu Asp Ile Leu
     3916          1890                 1895                 1900
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      3917   His Asn Ser Leu Asp Asn Asp Glu Cys Ser Thr His Ser His Lys Val
E--> 3918   1905                1910                1915                192
      3919   Phe Ala Asp Ile Gln Ser Glu Glu Ile Leu Gln His Asn Gln Asn Met
      3920                  1925                1930                1935
      3921   Ser Gly Leu Glu Lys Val Ser Lys Ile Ser Pro Cys Asp Val Ser Leu
      3922                  1940                1945                1950
      3923   Glu Thr Ser Asp Ile Cys Lys Cys Ser Ile Gly Lys Leu His Lys Ser
      3924          1955                1960                1965
      3925   Val Ser Ser Ala Asn Thr Cys Gly Ile Phe Ser Thr Ala Ser Gly Lys
      3926        1970                1975                1980
      3927   Ser Val Gln Val Ser Asp Ala Ser Leu Gln Asn Ala Arg Gln Val Phe
E--> 3928   1985                1990                1995                200
      3929   Ser Glu Ile Glu Asp Ser Thr Lys Gln Val Phe Ser Lys Val Leu Phe
      3930                  2005                2010                2015
      3931   Lys Ser Asn Glu His Ser Asp Gln Leu Thr Arg Glu Glu Asn Thr Ala
      3932                  2020                2025                2030
      3933   Ile Arg Thr Pro Glu His Leu Ile Ser Gln Lys Gly Phe Ser Tyr Asn
      3934          2035                2040                2045
      3935   Val Val Asn Ser Ser Ala Phe Ser Gly Phe Ser Thr Ala Ser Gly Lys
      3936        2050                2055                2060
      3937   Gln Val Ser Ile Leu Glu Ser Ser Leu His Lys Val Lys Gly Val Leu
E--> 3938   2065                2070                2075                208
      3939   Glu Glu Phe Asp Leu Ile Arg Thr Glu His Ser Leu His Tyr Ser Pro
      3940                  2085                2090                2095
      3941   Thr Ser Arg Gln Asn Val Ser Lys Ile Leu Pro Arg Val Asp Lys Arg
      3942                  2100                2105                2110
      3943   Asn Pro Glu His Cys Val Asn Ser Glu Met Glu Lys Thr Cys Ser Lys
      3944          2115                2120                2125
      3945   Glu Phe Lys Leu Ser Asn Asn Leu Asn Val Glu Gly Gly Ser Ser Glu
      3946        2130                2135                2140
      3947   Asn Asn His Ser Ile Lys Val Ser Pro Tyr Leu Ser Gln Phe Gln Gln
E--> 3948   2145                2150                2155                216
      3949   Asp Lys Gln Gln Leu Val Leu Gly Thr Lys Val Ser Leu Val Glu Asn
      3950                  2165                2170                2175
      3951   Ile His Val Leu Gly Lys Glu Gln Ala Ser Pro Lys Asn Val Lys Met
      3952                  2180                2185                2190
      3953   Glu Ile Gly Lys Thr Glu Thr Phe Ser Asp Val Pro Val Lys Thr Asn
      3954          2195                2200                2205
      3955   Ile Glu Val Cys Ser Thr Tyr Ser Lys Asp Ser Glu Asn Tyr Phe Glu
      3956        2210                2215                2220
      3957   Thr Glu Ala Val Glu Ile Ala Lys Ala Phe Met Glu Asp Asp Glu Leu
E--> 3958   2225                2230                2235                224
      3959   Thr Asp Ser Lys Leu Pro Ser His Ala Thr His Ser Leu Phe Thr Cys
      3960                  2245                2250                2255
      3961   Pro Glu Asn Glu Glu Met Val Leu Ser Asn Ser Arg Ile Gly Lys Arg
      3962                  2260                2265                2270
      3963   Arg Gly Glu Pro Leu Ile Leu Val Gly Glu Pro Ser Ile Lys Arg Asn
      3964          2275                2280                2285
      3965   Leu Leu Asn Glu Phe Asp Arg Ile Ile Glu Asn Gln Glu Lys Ser Leu
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       3966      2290              2295              2300
       3967   Lys Ala Ser Lys Ser Thr Pro Asp Gly Thr Ile Lys Asp Arg Arg Leu
E--> 3968   2305              2310              2315              232
       3969   Phe Met His His Val Ser Leu Glu Pro Ile Thr Cys Val Pro Phe Arg
       3970              2325              2330              2335
       3971   Thr Thr Lys Glu Arg Gln Glu Ile Gln Asn Pro Asn Phe Thr Ala Pro
       3972              2340              2345              2350
       3973   Gly Gln Glu Phe Leu Ser Lys Ser His Leu Tyr Glu His Leu Thr Leu
       3974              2355              2360              2365
       3975   Glu Lys Ser Ser Ser Asn Leu Ala Val Ser Gly His Pro Phe Tyr Gln
       3976              2370              2375              2380
       3977   Val Ser Ala Thr Arg Asn Glu Lys Met Arg His Leu Ile Thr Thr Gly
E--> 3978   2385              2390              2395              240
       3979   Arg Pro Thr Lys Val Phe Val Pro Pro Phe Lys Thr Lys Ser His Phe
       3980              2405              2410              2415
       3981   His Arg Val Glu Gln Cys Val Arg Asn Ile Asn Leu Glu Glu Asn Arg
       3982              2420              2425              2430
       3983   Gln Lys Gln Asn Ile Asp Gly His Gly Ser Asp Asp Ser Lys Asn Lys
       3984              2435              2440              2445
       3985   Ile Asn Asp Asn Glu Ile His Gln Phe Asn Lys Asn Asn Ser Asn Gln
       3986              2450              2455              2460
       3987   Ala Ala Ala Val Thr Phe Thr Lys Cys Glu Glu Pro Leu Asp Leu
E--> 3988   2465              2470              2475              248
       3989   Ile Thr Ser Leu Gln Asn Ala Arg Asp Ile Gln Asp Met Arg Ile Lys
       3990              2485              2490              2495
       3991   Lys Lys Gln Arg Gln Arg Val Phe Pro Gln Pro Gly Ser Leu Tyr Leu
       3992              2500              2505              2510
       3993   Ala Lys Thr Ser Thr Leu Pro Arg Ile Ser Leu Lys Ala Ala Val Gly
       3994              2515              2520              2525
       3995   Gly Gln Val Pro Ser Ala Cys Ser His Lys Gln Leu Tyr Thr Tyr Gly
       3996              2530              2535              2540
       3997   Val Ser Lys His Cys Ile Lys Ile Asn Ser Lys Asn Ala Glu Ser Phe
E--> 3998   2545              2550              2555              256
       3999   Gln Phe His Thr Glu Asp Tyr Phe Gly Lys Glu Ser Leu Trp Thr Gly
       4000              2565              2570              2575
       4001   Lys Gly Ile Gln Leu Ala Asp Gly Gly Trp Leu Ile Pro Ser Asn Asp
       4002              2580              2585              2590
       4003   Gly Lys Ala Gly Lys Glu Glu Phe Tyr Arg Ala Leu Cys Asp Thr Pro
       4004              2595              2600              2605
       4005   Gly Val Asp Pro Lys Leu Ile Ser Arg Ile Trp Val Tyr Asn His Tyr
       4006              2610              2615              2620
       4007   Arg Trp Ile Ile Trp Lys Leu Ala Ala Met Glu Cys Ala Phe Pro Lys
E--> 4008   2625              2630              2635              264
       4009   Glu Phe Ala Asn Arg Cys Leu Ser Pro Glu Arg Val Leu Leu Gln Leu
       4010              2645              2650              2655
       4011   Lys Tyr Arg Tyr Asp Thr Glu Ile Asp Arg Ser Arg Arg Ser Ala Ile
       4012              2660              2665              2670
       4013   Lys Lys Ile Met Glu Arg Asp Asp Thr Ala Ala Lys Thr Leu Val Leu
       4014              2675              2680              2685
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      4015  Cys Val Ser Asp Ile Ile Ser Leu Ser Ala Asn Ile Ser Glu Thr Ser
      4016       2690              2695              2700
      4017  Ser Asn Lys Thr Ser Ser Ala Asp Thr Gln Lys Val Ala Ile Ile Glu
E--> 4018  2705              2710              2715              272
      4019  Leu Thr Asp Gly Trp Tyr Ala Val Lys Ala Gln Leu Asp Pro Pro Leu
      4020                   2725              2730              2735
      4021  Leu Ala Val Leu Lys Asn Gly Arg Leu Thr Val Gly Gln Lys Ile Ile
      4022            2740              2745              2750
      4023  Leu His Gly Ala Glu Leu Val Gly Ser Pro Asp Ala Cys Thr Pro Leu
      4024            2755              2760              2765
      4025  Glu Ala Pro Glu Ser Leu Met Leu Lys Ile Ser Ala Asn Ser Thr Arg
      4026       2770              2775              2780
      4027  Pro Ala Arg Trp Tyr Thr Lys Leu Gly Phe Phe Pro Asp Pro Arg Pro
E--> 4028  2785              2790              2795              280
      4029  Phe Pro Leu Pro Leu Ser Ser Leu Phe Ser Asp Gly Gly Asn Val Gly
      4030                   2805              2810              2815
      4031  Cys Val Asp Val Ile Ile Gln Arg Ala Tyr Pro Ile Gln Trp Met Glu
      4032            2820              2825              2830
      4033  Lys Thr Ser Ser Gly Leu Tyr Ile Phe Arg Asn Glu Arg Glu Glu Glu
      4034            2835              2840              2845
      4035  Lys Glu Ala Ala Lys Tyr Val Glu Ala Gln Gln Lys Arg Leu Glu Ala
      4036       2850              2855              2860
      4037  Leu Phe Thr Lys Ile Gln Glu Glu Phe Glu Glu His Glu Glu Asn Thr
E--> 4038  2865              2870              2875              288
      4039  Thr Lys Pro Tyr Leu Pro Ser Arg Ala Leu Thr Arg Gln Gln Val Arg
      4040                   2885              2890              2895
      4041  Ala Leu Gln Asp Gly Ala Glu Leu Tyr Glu Ala Val Lys Asn Ala Ala
      4042            2900              2905              2910
      4043  Asp Pro Ala Tyr Leu Glu Gly Tyr Phe Ser Glu Glu Gln Leu Arg Ala
      4044            2915              2920              2925
      4045  Leu Asn Asn His Arg Gln Met Leu Asn Asp Lys Lys Gln Ala Gln Ile
      4046       2930              2935              2940
      4047  Gln Leu Glu Ile Arg Lys Ala Met Glu Ser Ala Glu Gln Lys Glu Gln
E--> 4048  2945              2950              2955              296
      4049  Gly Leu Ser Arg Asp Val Thr Thr Val Trp Lys Leu Arg Ile Val Ser
      4050                   2965              2970              2975
      4051  Tyr Ser Lys Lys Glu Lys Asp Ser Val Ile Leu Ser Ile Trp Arg Pro
      4052            2980              2985              2990
      4053  Ser Ser Asp Leu Tyr Ser Leu Leu Thr Glu Gly Lys Arg Tyr Arg Ile
      4054            2995              3000              3005
      4055  Tyr His Leu Ala Thr Ser Lys Ser Lys Ser Lys Ser Glu Arg Ala Asn
      4056       3010              3015              3020
      4057  Ile Gln Leu Ala Ala Thr Lys Lys Thr Gln Tyr Gln Gln Leu Pro Val
E--> 4058  3025              3030              3035              304
      4059  Ser Asp Glu Ile Leu Phe Gln Ile Tyr Gln Pro Arg Glu Pro Leu His
      4060                   3045              3050              3055
      4061  Phe Ser Lys Phe Leu Asp Pro Asp Phe Gln Pro Ser Cys Ser Glu Val
      4062            3060              3065              3070
      4063  Asp Leu Ile Gly Phe Val Val Ser Val Val Lys Lys Thr Gly Leu Ala
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      4064            3075              3080              3085
      4065    Pro Phe Val Tyr Leu Ser Asp Glu Cys Tyr Asn Leu Leu Ala Ile Lys
      4066       3090              3095              3100
      4067    Phe Trp Ile Asp Leu Asn Glu Asp Ile Ile Lys Pro His Met Leu Ile
E--> 4068    3105            3110              3115                 312
      4069    Ala Ala Ser Asn Leu Gln Trp Arg Pro Glu Ser Lys Ser Gly Leu Leu
      4070                3125              3130              3135
      4071    Thr Leu Phe Ala Gly Asp Phe Ser Val Phe Ser Ala Ser Pro Lys Glu
      4072            3140              3145              3150
      4073    Gly His Phe Gln Glu Thr Phe Asn Lys Met Lys Asn Thr Val Glu Asn
      4074            3155              3160              3165
      4075    Ile Asp Ile Leu Cys Asn Glu Ala Glu Asn Lys Leu Met His Ile Leu
      4076       3170              3175              3180
      4077    His Ala Asn Asp Pro Lys Trp Ser Thr Pro Thr Lys Asp Cys Thr Ser
E--> 4078    3185            3190              3195                 320
      4079    Gly Pro Tyr Thr Ala Gln Ile Ile Pro Gly Thr Gly Asn Lys Leu Leu
      4080                3205              3210              3215
      4081    Met Ser Ser Pro Asn Cys Glu Ile Tyr Tyr Gln Ser Pro Leu Ser Leu
      4082            3220              3225              3230
      4083    Cys Met Ala Lys Arg Lys Ser Val Ser Thr Pro Val Ser Ala Gln Met
      4084            3235              3240              3245
      4085    Thr Ser Lys Ser Cys Lys Gly Glu Lys Glu Ile Asp Asp Gln Lys Asn
      4086       3250              3255              3260
      4087    Cys Lys Lys Arg Arg Ala Leu Asp Phe Leu Ser Arg Leu Pro Leu Pro
E--> 4088    3265            3270              3275                 328
      4089    Pro Pro Val Ser Pro Ile Cys Thr Phe Val Ser Pro Ala Ala Gln Lys
      4090                3285              3290              3295
      4091    Ala Phe Gln Pro Pro Arg Ser Cys Gly Thr Lys Tyr Glu Thr Pro Ile
      4092            3300              3305              3310
      4093    Lys Lys Lys Glu Leu Asn Ser Pro Gln Met Thr Pro Phe Lys Lys Phe
      4094            3315              3320              3325
      4095    Asn Glu Ile Ser Leu Leu Glu Ser Asn Ser Ile Ala Asp Glu Glu Leu
      4096       3330              3335              3340
      4097    Ala Leu Ile Asn Thr Gln Ala Leu Leu Ser Gly Ser Thr Gly Glu Lys
E--> 4098    3345            3350              3355                 336
      4099    Gln Phe Ile Ser Val Ser Glu Ser Thr Arg Thr Ala Pro Thr Ser Ser
      4100                3365              3370              3375
      4101    Glu Asp Tyr Leu Arg Leu Lys Arg Arg Cys Thr Thr Ser Leu Ile Lys
      4102            3380              3385              3390
      4103    Glu Gln Glu Ser Ser Gln Ala Ser Thr Glu Glu Cys Glu Lys Asn Lys
      4104            3395              3400              3405
      4105    Gln Asp Thr Ile Thr Thr Lys Lys Tyr Ile
      4106       3410              3415
      4990 (2) INFORMATION FOR SEQ ID NO: 11:
      4992       (i) SEQUENCE CHARACTERISTICS:
      4993           (A) LENGTH: 3418 amino acids
      4994           (B) TYPE: amino acid
      4995           (C) STRANDEDNESS: single
      4996           (D) TOPOLOGY: linear
```

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4998     (ii) MOLECULE TYPE: protein
4999     (v)  FRAGMENT TYPE: internal
5001     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:
5003  Met Pro Ile Gly Ser Lys Glu Arg Pro Thr Phe Phe Glu Ile Phe Lys
5004   1           5                  10                 15
5005  Thr Arg Cys Asn Lys Ala Asp Leu Gly Pro Ile Ser Leu Asn Trp Phe
5006              20                  25                 30
5007  Glu Glu Leu Ser Ser Glu Ala Pro Pro Tyr Asn Ser Glu Pro Ala Glu
5008              35                  40                 45
5009  Glu Ser Glu His Lys Asn Asn Asn Tyr Glu Pro Asn Leu Phe Lys Thr
5010       50                  55                 60
5011  Pro Gln Arg Lys Pro Ser Tyr Asn Gln Leu Ala Ser Thr Pro Ile Ile
5012  65                  70                 75                 80
5013  Phe Lys Glu Gln Gly Leu Thr Leu Pro Leu Tyr Gln Ser Pro Val Lys
5014              85                  90                 95
5015  Glu Leu Asp Lys Phe Lys Leu Asp Leu Gly Arg Asn Val Pro Asn Ser
5016              100                 105                110
5017  Arg His Lys Ser Leu Arg Thr Val Lys Thr Lys Met Asp Gln Ala Asp
5018       115                 120                125
5019  Asp Val Ser Cys Pro Leu Leu Asn Ser Cys Leu Ser Glu Ser Pro Val
5020       130                 135                140
5021  Val Leu Gln Cys Thr His Val Thr Pro Gln Arg Asp Lys Ser Val Val
5022  145                 150                155                160
5023  Cys Gly Ser Leu Phe His Thr Pro Lys Phe Val Lys Gly Arg Gln Thr
5024              165                 170                175
5025  Pro Lys His Ile Ser Glu Ser Leu Gly Ala Glu Val Asp Pro Asp Met
5026              180                 185                190
5027  Ser Trp Ser Ser Ser Leu Ala Thr Pro Pro Thr Leu Ser Ser Thr Val
5028              195                 200                205
5029  Leu Ile Val Arg Asn Glu Glu Ala Ser Glu Thr Val Phe Pro His Asp
5030       210                 215                220
5031  Thr Thr Ala Asn Val Lys Ser Tyr Phe Ser Asn His Asp Glu Ser Leu
5032  225                 230                235                240
5033  Lys Lys Asn Asp Arg Phe Ile Ala Ser Val Thr Asp Ser Glu Asn Thr
5034              245                 250                255
5035  Asn Gln Arg Glu Ala Ala Ser His Gly Phe Gly Lys Thr Ser Gly Asn
5036              260                 265                270
5037  Ser Phe Lys Val Asn Ser Cys Lys Asp His Ile Gly Lys Ser Met Pro
5038       275                 280                285
5039  Asn Val Leu Glu Asp Glu Val Tyr Glu Thr Val Val Asp Thr Ser Glu
5040       290                 295                300
5041  Glu Asp Ser Phe Ser Leu Cys Phe Ser Lys Cys Arg Thr Lys Asn Leu
5042  305                 310                315                320
5043  Gln Lys Val Arg Thr Ser Lys Thr Arg Lys Lys Ile Phe His Glu Ala
5044              325                 330                335
5045  Asn Ala Asp Glu Cys Glu Lys Ser Lys Asn Gln Val Lys Glu Lys Tyr
5046              340                 345                350
5047  Ser Phe Val Ser Glu Val Glu Pro Asn Asp Thr Asp Pro Leu Asp Ser
5048              355                 360                365
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5049   Asn Val Ala His Gln Lys Pro Phe Glu Ser Gly Ser Asp Lys Ile Ser
5050       370             375             380
5051   Lys Glu Val Val Pro Ser Leu Ala Cys Glu Trp Ser Gln Leu Thr Leu
5052   385             390             395                 400
5053   Ser Gly Leu Asn Gly Ala Gln Met Glu Lys Ile Pro Leu Leu His Ile
5054               405             410                 415
5055   Ser Ser Cys Asp Gln Asn Ile Ser Glu Lys Asp Leu Leu Asp Thr Glu
5056           420             425                 430
5057   Asn Lys Arg Lys Lys Asp Phe Leu Thr Ser Glu Asn Ser Leu Pro Arg
5058           435             440                 445
5059   Ile Ser Ser Leu Pro Lys Ser Glu Lys Pro Leu Asn Glu Glu Thr Val
5060       450             455                 460
5061   Val Asn Lys Arg Asp Glu Glu Gln His Leu Glu Ser His Thr Asp Cys
5062   465             470             475                 480
5063   Ile Leu Ala Val Lys Gln Ala Ile Ser Gly Thr Ser Pro Val Ala Ser
5064               485             490                 495
5065   Ser Phe Gln Gly Ile Lys Lys Ser Ile Phe Arg Ile Arg Glu Ser Pro
5066               500             505                 510
5067   Lys Glu Thr Phe Asn Ala Ser Phe Ser Gly His Met Thr Asp Pro Asn
5068           515             520                 525
5069   Phe Lys Lys Glu Thr Glu Ala Ser Glu Ser Gly Leu Glu Ile His Thr
5070           530             535                 540
5071   Val Cys Ser Gln Lys Glu Asp Ser Leu Cys Pro Asn Leu Ile Asp Asn
5072   545             550             555                 560
5073   Gly Ser Trp Pro Ala Thr Thr Thr Gln Asn Ser Val Ala Leu Lys Asn
5074               565             570                 575
5075   Ala Gly Leu Ile Ser Thr Leu Lys Lys Lys Thr Asn Lys Phe Ile Tyr
5076               580             585                 590
5077   Ala Ile His Asp Glu Thr Ser Tyr Lys Gly Lys Lys Ile Pro Lys Asp
5078           595             600                 605
5079   Gln Lys Ser Glu Leu Ile Asn Cys Ser Ala Gln Phe Glu Ala Asn Ala
5080       610             615                 620
5081   Phe Glu Ala Pro Leu Thr Phe Ala Asn Ala Asp Ser Gly Leu Leu His
5082   625             630             635                 640
5083   Ser Ser Val Lys Arg Ser Cys Ser Gln Asn Asp Ser Glu Glu Pro Thr
5084               645             650                 655
5085   Leu Ser Leu Thr Ser Ser Phe Gly Thr Ile Leu Arg Lys Cys Ser Arg
5086               660             665                 670
5087   Asn Glu Thr Cys Ser Asn Asn Thr Val Ile Ser Gln Asp Leu Asp Tyr
5088           675             680                 685
5089   Lys Glu Ala Lys Cys Asn Lys Glu Lys Leu Gln Leu Phe Ile Thr Pro
5090       690             695                 700
5091   Glu Ala Asp Ser Leu Ser Cys Leu Gln Glu Gly Gln Cys Glu Asn Asp
5092   705             710             715                 720
5093   Pro Lys Ser Lys Lys Val Ser Asp Ile Lys Glu Glu Val Leu Ala Ala
5094               725             730                 735
5095   Ala Cys His Pro Val Gln His Ser Lys Val Glu Tyr Ser Asp Thr Asp
5096               740             745                 750
5097   Phe Gln Ser Gln Lys Ser Leu Leu Tyr Asp His Glu Asn Ala Ser Thr
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5098             755                  760                  765
5099  Leu Ile Leu Thr Pro Thr Ser Lys Asp Val Leu Ser Asn Leu Val Met
5100      770                  775                  780
5101  Ile Ser Arg Gly Lys Glu Ser Tyr Lys Met Ser Asp Lys Leu Lys Gly
5102  785                  790                  795                  800
5103  Asn Asn Tyr Glu Ser Asp Val Glu Leu Thr Lys Asn Ile Pro Met Glu
5104                  805                  810                  815
5105  Lys Asn Gln Asp Val Cys Ala Leu Asn Glu Asn Tyr Lys Asn Val Glu
5106              820                  825                  830
5107  Leu Leu Pro Pro Glu Lys Tyr Met Arg Val Ala Ser Pro Ser Arg Lys
5108              835                  840                  845
5109  Val Gln Phe Asn Gln Asn Thr Asn Leu Arg Val Ile Gln Lys Asn Gln
5110      850                  855                  860
5111  Glu Glu Thr Thr Ser Ile Ser Lys Ile Thr Val Asn Pro Asp Ser Glu
5112  865                  870                  875                  880
5113  Glu Leu Phe Ser Asp Asn Glu Asn Asn Phe Val Phe Gln Val Ala Asn
5114                  885                  890                  895
5115  Glu Arg Asn Asn Leu Ala Leu Gly Asn Thr Lys Glu Leu His Glu Thr
5116              900                  905                  910
5117  Asp Leu Thr Cys Val Asn Glu Pro Ile Phe Lys Asn Ser Thr Met Val
5118      915                  920                  925
5119  Leu Tyr Gly Asp Thr Gly Asp Lys Gln Ala Thr Gln Val Ser Ile Lys
5120      930                  935                  940
5121  Lys Asp Leu Val Tyr Val Leu Ala Glu Glu Asn Lys Asn Ser Val Lys
5122  945                  950                  955                  960
5123  Gln His Ile Lys Met Thr Leu Gly Gln Asp Leu Lys Ser Asp Ile Ser
5124              965                  970                  975
5125  Leu Asn Ile Asp Lys Ile Pro Glu Lys Asn Asn Asp Tyr Met Asn Lys
5126              980                  985                  990
5127  Trp Ala Gly Leu Leu Gly Pro Ile Ser Asn His Ser Phe Gly Gly Ser
5128      995                  1000                 1005
5129  Phe Arg Thr Ala Ser Asn Lys Glu Ile Lys Leu Ser Glu His Asn Ile
5130      1010                 1015                 1020
5131  Lys Lys Ser Lys Met Phe Phe Lys Asp Ile Glu Glu Gln Tyr Pro Thr
5132  1025                 1030                 1035                 1040
5133  Ser Leu Ala Cys Val Glu Ile Val Asn Thr Leu Ala Leu Asp Asn Gln
5134                  1045                 1050                 1055
5135  Lys Lys Leu Ser Lys Pro Gln Ser Ile Asn Thr Val Ser Ala His Leu
5136              1060                 1065                 1070
5137  Gln Ser Ser Val Val Val Ser Asp Cys Lys Asn Ser His Ile Thr Pro
5138              1075                 1080                 1085
5139  Gln Met Leu Phe Ser Lys Gln Asp Phe Asn Ser Asn His Asn Leu Thr
5140      1090                 1095                 1100
5141  Pro Ser Gln Lys Ala Glu Ile Thr Glu Leu Ser Thr Ile Leu Glu Glu
5142  1105                 1110                 1115                 1120
5143  Ser Gly Ser Gln Phe Glu Phe Thr Gln Phe Arg Lys Pro Ser Tyr Ile
5144                  1125                 1130                 1135
5145  Leu Gln Lys Ser Thr Phe Glu Val Pro Glu Asn Gln Met Thr Ile Leu
5146              1140                 1145                 1150
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E--> 5132 (handwritten annotation) 104 /1040

E--> 5142 (handwritten annotation) 112 //120

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      5147  Lys Thr Thr Ser Glu Glu Cys Arg Asp Ala Asp Leu His Val Ile Met
      5148        1155              1160              1165
      5149  Asn Ala Pro Ser Ile Gly Gln Val Asp Ser Ser Lys Gln Phe Glu Gly
      5150      1170              1175              1180
      5151  Thr Val Glu Ile Lys Arg Lys Phe Ala Gly Leu Leu Lys Asn Asp Cys
E--> 5152  1185              1190              1195              120
      5153  Asn Lys Ser Ala Ser Gly Tyr Leu Thr Asp Glu Asn Glu Val Gly Phe
      5154              1205              1210              1215
      5155  Arg Gly Phe Tyr Ser Ala His Gly Thr Lys Leu Asn Val Ser Thr Glu
      5156              1220              1225              1230
      5157  Ala Leu Gln Lys Ala Val Lys Leu Phe Ser Asp Ile Glu Asn Ile Ser
      5158          1235              1240              1245
      5159  Glu Glu Thr Ser Ala Glu Val His Pro Ile Ser Leu Ser Ser Ser Lys
      5160      1250              1255              1260
      5161  Cys His Asp Ser Val Val Ser Met Phe Lys Ile Glu Asn His Asn Asp
E--> 5162  1265              1270              1275              128
      5163  Lys Thr Val Ser Glu Lys Asn Asn Lys Cys Gln Leu Ile Leu Gln Asn
      5164              1285              1290              1295
      5165  Asn Ile Glu Met Thr Thr Gly Thr Phe Val Glu Glu Ile Thr Glu Asn
      5166              1300              1305              1310
      5167  Tyr Lys Arg Asn Thr Glu Asn Glu Asp Asn Lys Tyr Thr Ala Ala Ser
      5168          1315              1320              1325
      5169  Arg Asn Ser His Asn Leu Glu Phe Asp Gly Ser Asp Ser Ser Lys Asn
      5170      1330              1335              1340
      5171  Asp Thr Val Cys Ile His Lys Asp Glu Thr Asp Leu Leu Phe Thr Asp
E--> 5172  1345              1350              1355              136
      5173  Gln His Asn Ile Cys Leu Lys Leu Ser Gly Gln Phe Met Lys Glu Gly
      5174              1365              1370              1375
      5175  Asn Thr Gln Ile Lys Glu Asp Leu Ser Asp Leu Thr Phe Leu Glu Val
      5176              1380              1385              1390
      5177  Ala Lys Ala Gln Glu Ala Cys His Gly Asn Thr Ser Asn Lys Glu Gln
      5178          1395              1400              1405
      5179  Leu Thr Ala Thr Lys Thr Glu Gln Asn Ile Lys Asp Phe Glu Thr Ser
      5180      1410              1415              1420
      5181  Asp Thr Phe Phe Gln Thr Ala Ser Gly Lys Asn Ile Ser Val Ala Lys
E--> 5182  1425              1430              1435              144
      5183  Glu Ser Phe Asn Lys Ile Val Asn Phe Phe Asp Gln Lys Pro Glu Glu
      5184              1445              1450              1455
      5185  Leu His Asn Phe Ser Leu Asn Ser Glu Leu His Ser Asp Ile Arg Lys
      5186              1460              1465              1470
      5187  Asn Lys Met Asp Ile Leu Ser Tyr Glu Glu Thr Asp Ile Val Lys His
      5188          1475              1480              1485
      5189  Lys Ile Leu Lys Glu Ser Val Pro Val Gly Thr Gly Asn Gln Leu Val
      5190      1490              1495              1500
      5191  Thr Phe Gln Gly Gln Pro Glu Arg Asp Glu Lys Ile Lys Glu Pro Thr
E--> 5192  1505              1510              1515              152
      5193  Leu Leu Gly Phe His Thr Ala Ser Gly Lys Lys Val Lys Ile Ala Lys
      5194              1525              1530              1535
      5195  Glu Ser Leu Asp Lys Val Lys Asn Leu Phe Asp Glu Lys Glu Gln Gly
```

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                 Input Set : A:\G150581u.txt
                 Output Set: N:\CRF3\06252001\I084471B.raw

         5196              1540              1545              1550
         5197    Thr Ser Glu Ile Thr Ser Phe Ser His Gln Trp Ala Lys Thr Leu Lys
         5198         1555              1560              1565
         5199    Tyr Arg Glu Ala Cys Lys Asp Leu Glu Leu Ala Cys Glu Thr Ile Glu
         5200      1570              1575              1580
         5201    Ile Thr Ala Ala Pro Lys Cys Lys Glu Met Gln Asn Ser Leu Asn Asn
E-->     5202    1585              1590              1595              160
         5203    Asp Lys Asn Leu Val Ser Ile Glu Thr Val Pro Pro Lys Leu Leu
         5204              1605              1610              1615
         5205    Ser Asp Asn Leu Cys Arg Gln Thr Glu Asn Leu Lys Thr Ser Lys Ser
         5206           1620              1625              1630
         5207    Ile Phe Leu Lys Val Lys Val His Glu Asn Val Glu Lys Glu Thr Ala
         5208         1635              1640              1645
         5209    Lys Ser Pro Ala Thr Cys Tyr Thr Asn Gln Ser Pro Tyr Ser Val Ile
         5210      1650              1655              1660
         5211    Glu Asn Ser Ala Leu Ala Phe Tyr Thr Ser Cys Ser Arg Lys Thr Ser
E-->     5212    1665              1670              1675              168
         5213    Val Ser Gln Thr Ser Leu Leu Glu Ala Lys Lys Trp Leu Arg Glu Gly
         5214              1685              1690              1695
         5215    Ile Phe Asp Gly Gln Pro Glu Arg Ile Asn Thr Ala Asp Tyr Val Gly
         5216           1700              1705              1710
         5217    Asn Tyr Leu Tyr Glu Asn Asn Ser Asn Ser Thr Ile Ala Glu Asn Asp
         5218         1715              1720              1725
         5219    Lys Asn His Leu Ser Glu Lys Gln Asp Thr Tyr Leu Ser Asn Ser Ser
         5220      1730              1735              1740
         5221    Met Ser Asn Ser Tyr Ser Tyr His Ser Asp Glu Val Tyr Asn Asp Ser
E-->     5222    1745              1750              1755              176
         5223    Gly Tyr Leu Ser Lys Asn Lys Leu Asp Ser Gly Ile Glu Pro Val Leu
         5224              1765              1770              1775
         5225    Lys Asn Val Glu Asp Gln Lys Asn Thr Ser Phe Ser Lys Val Ile Ser
         5226           1780              1785              1790
         5227    Asn Val Lys Asp Ala Asn Ala Tyr Pro Gln Thr Val Asn Glu Asp Ile
         5228         1795              1800              1805
         5229    Cys Val Glu Glu Leu Val Thr Ser Ser Ser Pro Cys Lys Asn Lys Asn
         5230      1810              1815              1820
         5231    Ala Ala Ile Lys Leu Ser Ile Ser Asn Ser Asn Phe Glu Val Gly
E-->     5232    1825              1830              1835              184
         5233    Pro Pro Ala Phe Arg Ile Ala Ser Gly Lys Ile Val Cys Val Ser His
         5234              1845              1850              1855
         5235    Glu Thr Ile Lys Lys Val Lys Asp Ile Phe Thr Asp Ser Phe Ser Lys
         5236           1860              1865              1870
         5237    Val Ile Lys Glu Asn Asn Glu Asn Lys Ser Lys Ile Cys Gln Thr Lys
         5238         1875              1880              1885
         5239    Ile Met Ala Gly Cys Tyr Glu Ala Leu Asp Asp Ser Glu Asp Ile Leu
         5240      1890              1895              1900
         5241    His Asn Ser Leu Asp Asn Asp Glu Cys Ser Thr His Ser His Lys Val
E-->     5242    1905              1910              1915              192
         5243    Phe Ala Asp Ile Gln Ser Glu Glu Ile Leu Gln His Asn Gln Asn Met
         5244              1925              1930              1935
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      5245   Ser Gly Leu Glu Lys Val Ser Lys Ile Ser Pro Cys Asp Val Ser Leu
      5246             1940              1945              1950
      5247   Glu Thr Ser Asp Ile Cys Lys Cys Ser Ile Gly Lys Leu His Lys Ser
      5248             1955              1960              1965
      5249   Val Ser Ser Ala Asn Thr Cys Gly Ile Phe Ser Thr Ala Ser Gly Lys
      5250        1970              1975              1980
      5251   Ser Val Gln Val Ser Asp Ala Ser Leu Gln Asn Ala Arg Gln Val Phe
E--> 5252   1985              1990              1995              200
      5253   Ser Glu Ile Glu Asp Ser Thr Lys Gln Val Phe Ser Lys Val Leu Phe
      5254             2005              2010              2015
      5255   Lys Ser Asn Glu His Ser Asp Gln Leu Thr Arg Glu Glu Asn Thr Ala
      5256             2020              2025              2030
      5257   Ile Arg Thr Pro Glu His Leu Ile Ser Gln Lys Gly Phe Ser Tyr Asn
      5258             2035              2040              2045
      5259   Val Val Asn Ser Ser Ala Phe Ser Gly Phe Ser Thr Ala Ser Gly Lys
      5260        2050              2055              2060
      5261   Gln Val Ser Ile Leu Glu Ser Ser Leu His Lys Val Lys Gly Val Leu
E--> 5262   2065              2070              2075              208
      5263   Glu Glu Phe Asp Leu Ile Arg Thr Glu His Ser Leu His Tyr Ser Pro
      5264             2085              2090              2095
      5265   Thr Ser Arg Gln Asn Val Ser Lys Ile Leu Pro Arg Val Asp Lys Arg
      5266             2100              2105              2110
      5267   Asn Pro Glu His Cys Val Asn Ser Glu Met Glu Lys Thr Cys Ser Lys
      5268             2115              2120              2125
      5269   Glu Phe Lys Leu Ser Asn Asn Leu Asn Val Glu Gly Gly Ser Ser Glu
      5270        2130              2135              2140
      5271   Asn Asn His Ser Ile Lys Val Ser Pro Tyr Leu Ser Gln Phe Gln Gln
E--> 5272   2145              2150              2155              216
      5273   Asp Lys Gln Gln Leu Val Leu Gly Thr Lys Val Ser Leu Val Glu Asn
      5274             2165              2170              2175
      5275   Ile His Val Leu Gly Lys Glu Gln Ala Ser Pro Lys Asn Val Lys Met
      5276             2180              2185              2190
      5277   Glu Ile Gly Lys Thr Glu Thr Phe Ser Asp Val Pro Val Lys Thr Asn
      5278             2195              2200              2205
      5279   Ile Glu Val Cys Ser Thr Tyr Ser Lys Asp Ser Glu Asn Tyr Phe Glu
      5280        2210              2215              2220
      5281   Thr Glu Ala Val Glu Ile Ala Lys Ala Phe Met Glu Asp Asp Glu Leu
E--> 5282   2225              2230              2235              224
      5283   Thr Asp Ser Lys Leu Pro Ser His Ala Thr His Ser Leu Phe Thr Cys
      5284             2245              2250              2255
      5285   Pro Glu Asn Glu Glu Met Val Leu Ser Asn Ser Arg Ile Gly Lys Arg
      5286             2260              2265              2270
      5287   Arg Gly Glu Pro Leu Ile Leu Val Gly Glu Pro Ser Ile Lys Arg Asn
      5288             2275              2280              2285
      5289   Leu Leu Asn Glu Phe Asp Arg Ile Ile Glu Asn Gln Glu Lys Ser Leu
      5290        2290              2295              2300
      5291   Lys Ala Ser Lys Ser Thr Pro Asp Gly Thr Ile Lys Asp Arg Arg Leu
E--> 5292   2305              2310              2315              232
      5293   Phe Met His His Val Ser Leu Glu Pro Ile Thr Cys Val Pro Phe Arg
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     5294                    2325                    2330                    2335
     5295    Thr Thr Lys Glu Arg Gln Glu Ile Gln Asn Pro Asn Phe Thr Ala Pro
     5296                    2340                    2345                    2350
     5297    Gly Gln Glu Phe Leu Ser Lys Ser His Leu Tyr Glu His Leu Thr Leu
     5298                    2355                    2360                    2365
     5299    Glu Lys Ser Ser Ser Asn Leu Ala Val Ser Gly His Pro Phe Tyr Gln
     5300         2370                    2375                    2380
     5301    Val Ser Ala Thr Arg Asn Glu Lys Met Arg His Leu Ile Thr Thr Gly
E--> 5302    2385                    2390                    2395                    240
     5303    Arg Pro Thr Lys Val Phe Val Pro Pro Phe Lys Thr Lys Ser His Phe
     5304                    2405                    2410                    2415
     5305    His Arg Val Glu Gln Cys Val Arg Asn Ile Asn Leu Glu Glu Asn Arg
     5306                    2420                    2425                    2430
     5307    Gln Lys Gln Asn Ile Asp Gly His Gly Ser Asp Asp Ser Lys Asn Lys
     5308         2435                    2440                    2445
     5309    Ile Asn Asp Asn Glu Ile His Gln Phe Asn Lys Asn Asn Ser Asn Gln
     5310         2450                    2455                    2460
     5311    Ala Ala Ala Val Thr Phe Thr Lys Cys Glu Glu Glu Pro Leu Asp Leu
E--> 5312    2465                    2470                    2475                    248
     5313    Ile Thr Ser Leu Gln Asn Ala Arg Asp Ile Gln Asp Met Arg Ile Lys
     5314                    2485                    2490                    2495
     5315    Lys Lys Gln Arg Gln Arg Val Phe Pro Gln Pro Gly Ser Leu Tyr Leu
     5316                    2500                    2505                    2510
     5317    Ala Lys Thr Ser Thr Leu Pro Arg Ile Ser Leu Lys Ala Ala Val Gly
     5318         2515                    2520                    2525
     5319    Gly Gln Val Pro Ser Ala Cys Ser His Lys Gln Leu Tyr Thr Tyr Gly
     5320         2530                    2535                    2540
     5321    Val Ser Lys His Cys Ile Lys Ile Asn Ser Lys Asn Ala Glu Ser Phe
E--> 5322    2545                    2550                    2555                    256
     5323    Gln Phe His Thr Glu Asp Tyr Phe Gly Lys Glu Ser Leu Trp Thr Gly
     5324                    2565                    2570                    2575
     5325    Lys Gly Ile Gln Leu Ala Asp Gly Gly Trp Leu Ile Pro Ser Asn Asp
     5326                    2580                    2585                    2590
     5327    Gly Lys Ala Gly Lys Glu Glu Phe Tyr Arg Ala Leu Cys Asp Thr Pro
     5328         2595                    2600                    2605
     5329    Gly Val Asp Pro Lys Leu Ile Ser Arg Ile Trp Val Tyr Asn His Tyr
     5330         2610                    2615                    2620
     5331    Arg Trp Ile Ile Trp Lys Leu Ala Ala Met Glu Cys Ala Phe Pro Lys
E--> 5332    2625                    2630                    2635                    264
     5333    Glu Phe Ala Asn Arg Cys Leu Ser Pro Glu Arg Val Leu Leu Gln Leu
     5334                    2645                    2650                    2655
     5335    Lys Tyr Arg Tyr Asp Thr Glu Ile Asp Arg Ser Arg Arg Ser Ala Ile
     5336                    2660                    2665                    2670
     5337    Lys Lys Ile Met Glu Arg Asp Asp Thr Ala Ala Lys Thr Leu Val Leu
     5338         2675                    2680                    2685
     5339    Cys Val Ser Asp Ile Ile Ser Leu Ser Ala Asn Ile Ser Glu Thr Ser
     5340         2690                    2695                    2700
     5341    Ser Asn Lys Thr Ser Ser Ala Asp Thr Gln Lys Val Ala Ile Ile Glu
E--> 5342    2705                    2710                    2715                    272
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      5343  Leu Thr Asp Gly Trp Tyr Ala Val Lys Ala Gln Leu Asp Pro Pro Leu
      5344              2725              2730              2735
      5345  Leu Ala Val Leu Lys Asn Gly Arg Leu Thr Val Gly Gln Lys Ile Ile
      5346              2740              2745              2750
      5347  Leu His Gly Ala Glu Leu Val Gly Ser Pro Asp Ala Cys Thr Pro Leu
      5348              2755              2760              2765
      5349  Glu Ala Pro Glu Ser Leu Met Leu Lys Ile Ser Ala Asn Ser Thr Arg
      5350              2770              2775              2780
      5351  Pro Ala Arg Trp Tyr Thr Lys Leu Gly Phe Phe Pro Asp Pro Arg Pro
E--> 5352  2785              2790              2795              280
      5353  Phe Pro Leu Pro Leu Ser Ser Leu Phe Ser Asp Gly Gly Asn Val Gly
      5354              2805              2810              2815
      5355  Cys Val Asp Val Ile Ile Gln Arg Ala Tyr Pro Ile Gln Trp Met Glu
      5356              2820              2825              2830
      5357  Lys Thr Ser Ser Gly Leu Tyr Ile Phe Arg Asn Glu Arg Glu Glu Glu
      5358              2835              2840              2845
      5359  Lys Glu Ala Ala Lys Tyr Val Glu Ala Gln Gln Lys Arg Leu Glu Ala
      5360              2850              2855              2860
      5361  Leu Phe Thr Lys Ile Gln Glu Glu Phe Glu Glu His Glu Glu Asn Thr
E--> 5362  2865              2870              2875              288
      5363  Thr Lys Pro Tyr Leu Pro Ser Arg Ala Leu Thr Arg Gln Gln Val Arg
      5364              2885              2890              2895
      5365  Ala Leu Gln Asp Gly Ala Glu Leu Tyr Glu Ala Val Lys Asn Ala Ala
      5366              2900              2905              2910
      5367  Asp Pro Ala Tyr Leu Glu Gly Tyr Phe Ser Glu Glu Gln Leu Arg Ala
      5368              2915              2920              2925
      5369  Leu Asn Asn His Arg Gln Met Leu Asn Asp Lys Lys Gln Ala Gln Ile
      5370              2930              2935              2940
      5371  Gln Leu Glu Ile Arg Lys Ala Met Glu Ser Ala Glu Gln Lys Glu Gln
E--> 5372  2945              2950              2955              296
      5373  Gly Leu Ser Arg Asp Val Thr Thr Val Trp Lys Leu Arg Ile Val Ser
      5374              2965              2970              2975
      5375  Tyr Ser Lys Lys Glu Lys Asp Ser Val Ile Leu Ser Ile Trp Arg Pro
      5376              2980              2985              2990
      5377  Ser Ser Asp Leu Tyr Ser Leu Leu Thr Glu Gly Lys Arg Tyr Arg Ile
      5378              2995              3000              3005
      5379  Tyr His Leu Ala Thr Ser Lys Ser Lys Ser Lys Ser Glu Arg Ala Asn
      5380              3010              3015              3020
      5381  Ile Gln Leu Ala Ala Thr Lys Lys Thr Gln Tyr Gln Gln Leu Pro Val
E--> 5382  3025              3030              3035              304
      5383  Ser Asp Glu Ile Leu Phe Gln Ile Tyr Gln Pro Arg Glu Pro Leu His
      5384              3045              3050              3055
      5385  Phe Ser Lys Phe Leu Asp Pro Asp Phe Gln Pro Ser Cys Ser Glu Val
      5386              3060              3065              3070
      5387  Asp Leu Ile Gly Phe Val Val Ser Val Val Lys Lys Thr Gly Leu Ala
      5388              3075              3080              3085
      5389  Pro Phe Val Tyr Leu Ser Asp Glu Cys Tyr Asn Leu Leu Ala Ile Lys
      5390              3090              3095              3100
      5391  Phe Trp Ile Asp Leu Asn Glu Asp Ile Ile Lys Pro His Met Leu Ile
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E--> 5392  3105                    3110                3115                    312
     5393  Ala Ala Ser Asn Leu Gln Trp Arg Pro Glu Ser Lys Ser Gly Leu Leu
     5394                 3125                3130                3135
     5395  Thr Leu Phe Ala Gly Asp Phe Ser Val Phe Ser Ala Ser Pro Lys Glu
     5396                 3140                3145                3150
     5397  Gly His Phe Gln Glu Thr Phe Asn Lys Met Lys Asn Thr Val Glu Asn
     5398                 3155                3160                3165
     5399  Ile Asp Ile Leu Cys Asn Glu Ala Glu Asn Lys Leu Met His Ile Leu
     5400        3170                3175                3180
     5401  His Ala Asn Asp Pro Lys Trp Ser Thr Pro Thr Lys Asp Cys Thr Ser
E--> 5402  3185                    3190                3195                    320
     5403  Gly Pro Tyr Thr Ala Gln Ile Ile Pro Gly Thr Gly Asn Lys Leu Leu
     5404                 3205                3210                3215
     5405  Met Ser Ser Pro Asn Cys Glu Ile Tyr Tyr Gln Ser Pro Leu Ser Leu
     5406                 3220                3225                3230
     5407  Cys Met Ala Lys Arg Lys Ser Val Ser Thr Pro Val Ser Ala Gln Met
     5408                 3235                3240                3245
     5409  Thr Ser Lys Ser Cys Lys Gly Glu Lys Glu Ile Asp Asp Gln Lys Asn
     5410        3250                3255                3260
     5411  Cys Lys Lys Arg Arg Ala Leu Asp Phe Leu Ser Arg Leu Pro Leu Pro
E--> 5412  3265                    3270                3275                    328
     5413  Pro Pro Val Ser Pro Ile Cys Thr Phe Val Ser Pro Ala Ala Gln Lys
     5414                 3285                3290                3295
     5415  Ala Phe Gln Pro Pro Arg Ser Cys Gly Thr Lys Tyr Glu Thr Pro Ile
     5416                 3300                3305                3310
     5417  Lys Lys Lys Glu Leu Asn Ser Pro Gln Met Thr Pro Phe Lys Lys Phe
     5418                 3315                3320                3325
     5419  Asn Glu Ile Ser Leu Leu Glu Ser Asn Ser Ile Ala Asp Glu Glu Leu
     5420        3330                3335                3340
     5421  Ala Leu Ile Asn Thr Gln Ala Leu Leu Ser Gly Ser Thr Gly Glu Lys
E--> 5422  3345                    3350                3355                    336
     5423  Gln Phe Ile Ser Val Ser Glu Ser Thr Arg Thr Ala Pro Thr Ser Ser
     5424                 3365                3370                3375
     5425  Glu Asp Tyr Leu Arg Leu Lys Arg Arg Cys Thr Thr Ser Leu Ile Lys
     5426                 3380                3385                3390
     5427  Glu Gln Glu Ser Ser Gln Ala Ser Thr Glu Glu Cys Glu Lys Asn Lys
     5428                 3395                3400                3405
     5429  Gln Asp Thr Ile Thr Thr Lys Lys Tyr Ile
     5430        3410                3415
     6314  (2) INFORMATION FOR SEQ ID NO: 13:
     6316      (i) SEQUENCE CHARACTERISTICS:
     6317          (A) LENGTH: 3418 amino acids
     6318          (B) TYPE: amino acid
     6319          (C) STRANDEDNESS: single
     6320          (D) TOPOLOGY: linear
     6322     (ii) MOLECULE TYPE: protein
     6323      (v) FRAGMENT TYPE: internal
     6325     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:
     6327  Met Pro Ile Gly Ser Lys Glu Arg Pro Thr Phe Phe Glu Ile Phe Lys
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6328    1                    5                    10                   15
6329  Thr Arg Cys Asn Lys Ala Asp Leu Gly Pro Ile Ser Leu Asn Trp Phe
6330            20                   25                   30
6331  Glu Glu Leu Ser Ser Glu Ala Pro Pro Tyr Asn Ser Glu Pro Ala Glu
6332            35                   40                   45
6333  Glu Ser Glu His Lys Asn Asn Asn Tyr Glu Pro Asn Leu Phe Lys Thr
6334            50                   55                   60
6335  Pro Gln Arg Lys Pro Ser Tyr Asn Gln Leu Ala Ser Thr Pro Ile Ile
6336  65                   70                   75                   80
6337  Phe Lys Glu Gln Gly Leu Thr Leu Pro Leu Tyr Gln Ser Pro Val Lys
6338            85                   90                   95
6339  Glu Leu Asp Lys Phe Lys Leu Asp Leu Gly Arg Asn Val Pro Asn Ser
6340            100                  105                  110
6341  Arg His Lys Ser Leu Arg Thr Val Lys Thr Lys Met Asp Gln Ala Asp
6342            115                  120                  125
6343  Asp Val Ser Cys Pro Leu Leu Asn Ser Cys Leu Ser Glu Ser Pro Val
6344            130                  135                  140
6345  Val Leu Gln Cys Thr His Val Thr Pro Gln Arg Asp Lys Ser Val Val
6346  145                  150                  155                  160
6347  Cys Gly Ser Leu Phe His Thr Pro Lys Phe Val Lys Gly Arg Gln Thr
6348            165                  170                  175
6349  Pro Lys His Ile Ser Glu Ser Leu Gly Ala Glu Val Asp Pro Asp Met
6350            180                  185                  190
6351  Ser Trp Ser Ser Ser Leu Ala Thr Pro Pro Thr Leu Ser Ser Thr Val
6352            195                  200                  205
6353  Leu Ile Val Arg Asn Glu Glu Ala Ser Glu Thr Val Phe Pro His Asp
6354            210                  215                  220
6355  Thr Thr Ala Asn Val Lys Ser Tyr Phe Ser Asn His Asp Glu Ser Leu
6356  225                  230                  235                  240
6357  Lys Lys Asn Asp Arg Phe Ile Ala Ser Val Thr Asp Ser Glu Asn Thr
6358            245                  250                  255
6359  Asn Gln Arg Glu Ala Ala Ser His Gly Phe Gly Lys Thr Ser Gly Asn
6360            260                  265                  270
6361  Ser Phe Lys Val Asn Ser Cys Lys Asp His Ile Gly Lys Ser Met Pro
6362            275                  280                  285
6363  His Val Leu Glu Asp Glu Val Tyr Glu Thr Val Val Asp Thr Ser Glu
6364            290                  295                  300
6365  Glu Asp Ser Phe Ser Leu Cys Phe Ser Lys Cys Arg Thr Lys Asn Leu
6366  305                  310                  315                  320
6367  Gln Lys Val Arg Thr Ser Lys Thr Arg Lys Lys Ile Phe His Glu Ala
6368            325                  330                  335
6369  Asn Ala Asp Glu Cys Glu Lys Ser Lys Asn Gln Val Lys Glu Lys Tyr
6370            340                  345                  350
6371  Ser Phe Val Ser Glu Val Glu Pro Asn Asp Thr Asp Pro Leu Asp Ser
6372            355                  360                  365
6373  Asn Val Ala His Gln Lys Pro Phe Glu Ser Gly Ser Asp Lys Ile Ser
6374            370                  375                  380
6375  Lys Glu Val Val Pro Ser Leu Ala Cys Glu Trp Ser Gln Leu Thr Leu
6376  385                  390                  395                  400
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6377   Ser Gly Leu Asn Gly Ala Gln Met Glu Lys Ile Pro Leu Leu His Ile
6378                   405                 410                 415
6379   Ser Ser Cys Asp Gln Asn Ile Ser Glu Lys Asp Leu Leu Asp Thr Glu
6380                   420                 425                 430
6381   Asn Lys Arg Lys Lys Asp Phe Leu Thr Ser Glu Asn Ser Leu Pro Arg
6382               435                 440                 445
6383   Ile Ser Ser Leu Pro Lys Ser Glu Lys Pro Leu Asn Glu Glu Thr Val
6384           450                 455                 460
6385   Val Asn Lys Arg Asp Glu Glu Gln His Leu Glu Ser His Thr Asp Cys
6386   465                 470                 475                 480
6387   Ile Leu Ala Val Lys Gln Ala Ile Ser Gly Thr Ser Pro Val Ala Ser
6388               485                 490                 495
6389   Ser Phe Gln Gly Ile Lys Lys Ser Ile Phe Arg Ile Arg Glu Ser Pro
6390               500                 505                 510
6391   Lys Glu Thr Phe Asn Ala Ser Phe Ser Gly His Met Thr Asp Pro Asn
6392           515                 520                 525
6393   Phe Lys Lys Glu Thr Glu Ala Ser Glu Ser Gly Leu Glu Ile His Thr
6394           530                 535                 540
6395   Val Cys Ser Gln Lys Glu Asp Ser Leu Cys Pro Asn Leu Ile Asp Asn
6396   545                 550                 555                 560
6397   Gly Ser Trp Pro Ala Thr Thr Thr Gln Asn Ser Val Ala Leu Lys Asn
6398                   565                 570                 575
6399   Ala Gly Leu Ile Ser Thr Leu Lys Lys Lys Thr Asn Lys Phe Ile Tyr
6400               580                 585                 590
6401   Ala Ile His Asp Glu Thr Ser Tyr Lys Gly Lys Lys Ile Pro Lys Asp
6402           595                 600                 605
6403   Gln Lys Ser Glu Leu Ile Asn Cys Ser Ala Gln Phe Glu Ala Asn Ala
6404           610                 615                 620
6405   Phe Glu Ala Pro Leu Thr Phe Ala Asn Ala Asp Ser Gly Leu Leu His
6406   625                 630                 635                 640
6407   Ser Ser Val Lys Arg Ser Cys Ser Gln Asn Asp Ser Glu Glu Pro Thr
6408                   645                 650                 655
6409   Leu Ser Leu Thr Ser Ser Phe Gly Thr Ile Leu Arg Lys Cys Ser Arg
6410               660                 665                 670
6411   Asn Glu Thr Cys Ser Asn Asn Thr Val Ile Ser Gln Asp Leu Asp Tyr
6412           675                 680                 685
6413   Lys Glu Ala Lys Cys Asn Lys Glu Lys Leu Gln Leu Phe Ile Thr Pro
6414           690                 695                 700
6415   Glu Ala Asp Ser Leu Ser Cys Leu Gln Glu Gly Gln Cys Glu Asn Asp
6416   705                 710                 715                 720
6417   Pro Lys Ser Lys Lys Val Ser Asp Ile Lys Glu Glu Val Leu Ala Ala
6418               725                 730                 735
6419   Ala Cys His Pro Val Gln His Ser Lys Val Glu Tyr Ser Asp Thr Asp
6420               740                 745                 750
6421   Phe Gln Ser Gln Lys Ser Leu Leu Tyr Asp His Glu Asn Ala Ser Thr
6422           755                 760                 765
6423   Leu Ile Leu Thr Pro Thr Ser Lys Asp Val Leu Ser Asn Leu Val Met
6424           770                 775                 780
6425   Ile Ser Arg Gly Lys Glu Ser Tyr Lys Met Ser Asp Lys Leu Lys Gly
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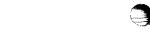
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6426 785                   790                   795                   800
6427 Asn Asn Tyr Glu Ser Asp Val Glu Leu Thr Lys Asn Ile Pro Met Glu
6428             805                   810                   815
6429 Lys Asn Gln Asp Val Cys Ala Leu Asn Glu Asn Tyr Lys Asn Val Glu
6430             820                   825                   830
6431 Leu Leu Pro Pro Glu Lys Tyr Met Arg Val Ala Ser Pro Ser Arg Lys
6432             835                   840                   845
6433 Val Gln Phe Asn Gln Asn Thr Asn Leu Arg Val Ile Gln Lys Asn Gln
6434             850                   855                   860
6435 Glu Glu Thr Thr Ser Ile Ser Lys Ile Thr Val Asn Pro Asp Ser Glu
6436 865                   870                   875                   880
6437 Glu Leu Phe Ser Asp Asn Glu Asn Asn Phe Val Phe Gln Ile Ala Asn
6438             885                   890                   895
6439 Glu Arg Asn Asn Leu Ala Leu Gly Asn Thr Lys Glu Leu His Glu Thr
6440             900                   905                   910
6441 Asp Leu Thr Cys Val Asn Glu Pro Ile Phe Lys Asn Ser Thr Met Val
6442             915                   920                   925
6443 Leu Tyr Gly Asp Thr Gly Asp Lys Gln Ala Thr Gln Val Ser Ile Lys
6444             930                   935                   940
6445 Lys Asp Leu Val Tyr Val Leu Ala Glu Glu Asn Lys Asn Ser Val Lys
6446 945                   950                   955                   960
6447 Gln His Ile Lys Met Thr Leu Gly Gln Asp Leu Lys Ser Asp Ile Ser
6448             965                   970                   975
6449 Leu Asn Ile Asp Lys Ile Pro Glu Lys Asn Asn Asp Tyr Met Asp Lys
6450             980                   985                   990
6451 Trp Ala Gly Leu Leu Gly Pro Ile Ser Asn His Ser Phe Gly Gly Ser
6452             995                   1000                  1005
6453 Phe Arg Thr Ala Ser Asn Lys Glu Ile Lys Leu Ser Glu His Asn Ile
6454             1010                  1015                  1020
6455 Lys Lys Ser Lys Met Phe Phe Lys Asp Ile Glu Glu Gln Tyr Pro Thr
E--> 6456 1025                  1030                  1035                  1040
6457 Ser Leu Ala Cys Val Glu Ile Val Asn Thr Leu Ala Leu Asp Asn Gln
6458             1045                  1050                  1055
6459 Lys Lys Leu Ser Lys Pro Gln Ser Ile Asn Thr Val Ser Ala His Leu
6460             1060                  1065                  1070
6461 Gln Ser Ser Val Val Val Ser Asp Cys Lys Asn Ser His Ile Thr Pro
6462             1075                  1080                  1085
6463 Gln Met Leu Phe Ser Lys Gln Asp Phe Asn Ser Asn His Asn Leu Thr
6464             1090                  1095                  1100
6465 Pro Ser Gln Lys Ala Glu Ile Thr Glu Leu Ser Thr Ile Leu Glu Glu
E--> 6466 1105                  1110                  1115                  1120
6467 Ser Gly Ser Gln Phe Glu Phe Thr Gln Phe Arg Lys Pro Ser Tyr Ile
6468             1125                  1130                  1135
6469 Leu Gln Lys Ser Thr Phe Glu Val Pro Glu Asn Gln Met Thr Ile Leu
6470             1140                  1145                  1150
6471 Lys Thr Thr Ser Glu Glu Cys Arg Asp Ala Asp Leu His Val Ile Met
6472             1155                  1160                  1165
6473 Asn Ala Pro Ser Ile Gly Gln Val Asp Ser Ser Lys Gln Phe Glu Gly
6474             1170                  1175                  1180
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       6475   Thr Val Glu Ile Lys Arg Lys Phe Ala Gly Leu Leu Lys Asn Asp Cys
E--> 6476   1185            1190            1195            120
       6477   Asn Lys Ser Ala Ser Gly Tyr Leu Thr Asp Glu Asn Glu Val Gly Phe
       6478            1205            1210            1215
       6479   Arg Gly Phe Tyr Ser Ala His Gly Thr Lys Leu Asn Val Ser Thr Glu
       6480            1220            1225            1230
       6481   Ala Leu Gln Lys Ala Val Lys Leu Phe Ser Asp Ile Glu Asn Ile Ser
       6482            1235            1240            1245
       6483   Glu Glu Thr Ser Ala Glu Val His Pro Ile Ser Leu Ser Ser Ser Lys
       6484            1250            1255            1260
       6485   Cys His Asp Ser Val Val Ser Met Phe Lys Ile Glu Asn His Asn Asp
E--> 6486   1265            1270            1275            128
       6487   Lys Thr Val Ser Glu Lys Asn Asn Lys Cys Gln Leu Ile Leu Gln Asn
       6488            1285            1290            1295
       6489   Asn Ile Glu Met Thr Thr Gly Thr Phe Val Glu Glu Ile Thr Glu Asn
       6490            1300            1305            1310
       6491   Tyr Lys Arg Asn Thr Glu Asn Glu Asp Asn Lys Tyr Thr Ala Ala Ser
       6492            1315            1320            1325
       6493   Arg Asn Ser His Asn Leu Glu Phe Asp Gly Ser Asp Ser Ser Lys Asn
       6494            1330            1335            1340
       6495   Asp Thr Val Cys Ile His Lys Asp Glu Thr Asp Leu Leu Phe Thr Asp
E--> 6496   1345            1350            1355            136
       6497   Gln His Asn Ile Cys Leu Lys Leu Ser Gly Gln Phe Met Lys Glu Gly
       6498            1365            1370            1375
       6499   Asn Thr Gln Ile Lys Glu Asp Leu Ser Asp Leu Thr Phe Leu Glu Val
       6500            1380            1385            1390
       6501   Ala Lys Ala Gln Glu Ala Cys His Gly Asn Thr Ser Asn Lys Glu Gln
       6502            1395            1400            1405
       6503   Leu Thr Ala Thr Lys Thr Glu Gln Asn Ile Lys Asp Phe Glu Thr Ser
       6504            1410            1415            1420
       6505   Asp Thr Phe Phe Gln Thr Ala Ser Gly Lys Asn Ile Ser Val Ala Lys
E--> 6506   1425            1430            1435            144
       6507   Glu Ser Phe Asn Lys Ile Val Asn Phe Phe Asp Gln Lys Pro Glu Glu
       6508            1445            1450            1455
       6509   Leu His Asn Phe Ser Leu Asn Ser Glu Leu His Ser Asp Ile Arg Lys
       6510            1460            1465            1470
       6511   Asn Lys Met Asp Ile Leu Ser Tyr Glu Glu Thr Asp Ile Val Lys His
       6512            1475            1480            1485
       6513   Lys Ile Leu Lys Glu Ser Val Pro Val Gly Thr Gly Asn Gln Leu Val
       6514            1490            1495            1500
       6515   Thr Phe Gln Gly Gln Pro Glu Arg Asp Glu Lys Ile Lys Glu Pro Thr
E--> 6516   1505            1510            1515            152
       6517   Leu Leu Gly Phe His Thr Ala Ser Gly Lys Lys Val Lys Ile Ala Lys
       6518            1525            1530            1535
       6519   Glu Ser Leu Asp Lys Val Lys Asn Leu Phe Asp Glu Lys Glu Gln Gly
       6520            1540            1545            1550
       6521   Thr Ser Glu Ile Thr Ser Phe Ser His Gln Trp Ala Lys Thr Leu Lys
       6522            1555            1560            1565
       6523   Tyr Arg Glu Ala Cys Lys Asp Leu Glu Leu Ala Cys Glu Thr Ile Glu
```

```
        6524      1570              1575              1580
        6525   Ile Thr Ala Ala Pro Lys Cys Lys Glu Met Gln Asn Ser Leu Asn Asn
E-->    6526   1585              1590              1595              160
        6527   Asp Lys Asn Leu Val Ser Ile Glu Thr Val Val Pro Pro Lys Leu Leu
        6528              1605              1610              1615
        6529   Ser Asp Asn Leu Cys Arg Gln Thr Glu Asn Leu Lys Thr Ser Lys Ser
        6530              1620              1625              1630
        6531   Ile Phe Leu Lys Val Lys Val His Glu Asn Val Glu Lys Glu Thr Ala
        6532              1635              1640              1645
        6533   Lys Ser Pro Ala Thr Cys Tyr Thr Asn Gln Ser Pro Tyr Ser Val Ile
        6534        1650              1655              1660
        6535   Glu Asn Ser Ala Leu Ala Phe Tyr Thr Ser Cys Ser Arg Lys Thr Ser
E-->    6536   1665              1670              1675              168
        6537   Val Ser Gln Thr Ser Leu Leu Glu Ala Lys Lys Trp Leu Arg Glu Gly
        6538              1685              1690              1695
        6539   Ile Phe Asp Gly Gln Pro Glu Arg Ile Asn Thr Ala Asp Tyr Val Gly
        6540              1700              1705              1710
        6541   Asn Tyr Leu Tyr Glu Asn Asn Ser Asn Ser Thr Ile Ala Glu Asn Asp
        6542        1715              1720              1725
        6543   Lys Asn His Leu Ser Glu Lys Gln Asp Thr Tyr Leu Ser Asn Ser Ser
        6544        1730              1735              1740
        6545   Met Ser Asn Ser Tyr Ser Tyr His Ser Asp Glu Val Tyr Asn Asp Ser
E-->    6546   1745              1750              1755              176
        6547   Gly Tyr Leu Ser Lys Asn Lys Leu Asp Ser Gly Ile Glu Pro Val Leu
        6548              1765              1770              1775
        6549   Lys Asn Val Glu Asp Gln Lys Asn Thr Ser Phe Ser Lys Val Ile Ser
        6550              1780              1785              1790
        6551   Asn Val Lys Asp Ala Asn Ala Tyr Pro Gln Thr Val Asn Glu Asp Ile
        6552        1795              1800              1805
        6553   Cys Val Glu Glu Leu Val Thr Ser Ser Ser Pro Cys Lys Asn Lys Asn
        6554        1810              1815              1820
        6555   Ala Ala Ile Lys Leu Ser Ile Ser Asn Ser Asn Asn Phe Glu Val Gly
E-->    6556   1825              1830              1835              184
        6557   Pro Pro Ala Phe Arg Ile Ala Ser Gly Lys Ile Val Cys Val Ser His
        6558              1845              1850              1855
        6559   Glu Thr Ile Lys Lys Val Lys Asp Ile Phe Thr Asp Ser Phe Ser Lys
        6560              1860              1865              1870
        6561   Val Ile Lys Glu Asn Asn Glu Asn Lys Ser Lys Ile Cys Gln Thr Lys
        6562        1875              1880              1885
        6563   Ile Met Ala Gly Cys Tyr Glu Ala Leu Asp Asp Ser Glu Asp Ile Leu
        6564        1890              1895              1900
        6565   His Asn Ser Leu Asp Asn Asp Glu Cys Ser Thr His Ser His Lys Val
E-->    6566   1905              1910              1915              192
        6567   Phe Ala Asp Ile Gln Ser Glu Glu Ile Leu Gln His Asn Gln Asn Met
        6568              1925              1930              1935
        6569   Ser Gly Leu Glu Lys Val Ser Lys Ile Ser Pro Cys Asp Val Ser Leu
        6570              1940              1945              1950
        6571   Glu Thr Ser Asp Ile Cys Lys Cys Ser Ile Gly Lys Leu His Lys Ser
        6572        1955              1960              1965
```
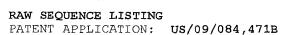
Input Set : A:\G150581u.txt
Output Set: N:\CRF3\06252001\I084471B.raw

```
        6573  Val Ser Ser Ala Asn Thr Cys Gly Ile Phe Ser Thr Ala Ser Gly Lys
        6574      1970                1975                1980
        6575  Ser Val Gln Val Ser Asp Ala Ser Leu Gln Asn Ala Arg Gln Val Phe
E-->    6576  1985                1990                1995                200
        6577  Ser Glu Ile Glu Asp Ser Thr Lys Gln Val Phe Ser Lys Val Leu Phe
        6578                  2005                2010                2015
        6579  Lys Ser Asn Glu His Ser Asp Gln Leu Thr Arg Glu Glu Asn Thr Ala
        6580              2020                2025                2030
        6581  Ile Arg Thr Pro Glu His Leu Ile Ser Gln Lys Gly Phe Ser Tyr Asn
        6582              2035                2040                2045
        6583  Val Val Asn Ser Ser Ala Phe Ser Gly Phe Ser Thr Ala Ser Gly Lys
        6584          2050                2055                2060
        6585  Gln Val Ser Ile Leu Glu Ser Ser Leu His Lys Val Lys Gly Val Leu
E-->    6586  2065                2070                2075                208
        6587  Glu Glu Phe Asp Leu Ile Arg Thr Glu His Ser Leu His Tyr Ser Pro
        6588                  2085                2090                2095
        6589  Thr Ser Arg Gln Asn Val Ser Lys Ile Leu Pro Arg Val Asp Lys Arg
        6590              2100                2105                2110
        6591  Asn Pro Glu His Cys Val Asn Ser Glu Met Glu Lys Thr Cys Ser Lys
        6592          2115                2120                2125
        6593  Glu Phe Lys Leu Ser Asn Asn Leu Asn Val Glu Gly Gly Ser Ser Glu
        6594          2130                2135                2140
        6595  Asn Asn His Ser Ile Lys Val Ser Pro Tyr Leu Ser Gln Phe Gln Gln
E-->    6596  2145                2150                2155                216
        6597  Asp Lys Gln Gln Leu Val Leu Gly Thr Lys Val Ser Leu Val Glu Asn
        6598                  2165                2170                2175
        6599  Ile His Val Leu Gly Lys Glu Gln Ala Ser Pro Lys Asn Val Lys Met
        6600              2180                2185                2190
        6601  Glu Ile Gly Lys Thr Glu Thr Phe Ser Asp Val Pro Val Lys Thr Asn
        6602              2195                2200                2205
        6603  Ile Glu Val Cys Ser Thr Tyr Ser Lys Asp Ser Glu Asn Tyr Phe Glu
        6604          2210                2215                2220
        6605  Thr Glu Ala Val Glu Ile Ala Lys Ala Phe Met Glu Asp Asp Glu Leu
E-->    6606  2225                2230                2235                224
        6607  Thr Asp Ser Lys Leu Pro Ser His Ala Thr His Ser Leu Phe Thr Cys
        6608                  2245                2250                2255
        6609  Pro Glu Asn Glu Glu Met Val Leu Ser Asn Ser Arg Ile Gly Lys Arg
        6610              2260                2265                2270
        6611  Arg Gly Glu Pro Leu Ile Leu Val Gly Glu Pro Ser Ile Lys Arg Asn
        6612          2275                2280                2285
        6613  Leu Leu Asn Glu Phe Asp Arg Ile Ile Glu Asn Gln Glu Lys Ser Leu
        6614          2290                2295                2300
        6615  Lys Ala Ser Lys Ser Thr Pro Asp Gly Thr Ile Lys Asp Arg Arg Leu
E-->    6616  2305                2310                2315                232
        6617  Phe Met His His Val Ser Leu Glu Pro Ile Thr Cys Val Pro Phe Arg
        6618                  2325                2330                2335
        6619  Thr Thr Lys Glu Arg Gln Glu Ile Gln Asn Pro Asn Phe Thr Ala Pro
        6620              2340                2345                2350
        6621  Gly Gln Glu Phe Leu Ser Lys Ser His Leu Tyr Glu His Leu Thr Leu
```

RAW SEQUENCE LISTING   DATE: 06/25/2001
PATENT APPLICATION: **US/09/084,471B**   TIME: 11:40:55

Input Set : **A:\G150581u.txt**
Output Set: **N:\CRF3\06252001\I084471B.raw**

```
        6622        2355                2360                2365
        6623   Glu Lys Ser Ser Ser Asn Leu Ala Val Ser Gly His Pro Phe Tyr Gln
        6624        2370                2375                2380
        6625   Val Ser Ala Thr Arg Asn Glu Lys Met Arg His Leu Ile Thr Thr Gly
E--> 6626   2385                2390                2395                240
        6627   Arg Pro Thr Lys Val Phe Val Pro Pro Phe Lys Thr Lys Ser His Phe
        6628                2405                2410                2415
        6629   His Arg Val Glu Gln Cys Val Arg Asn Ile Asn Leu Glu Glu Asn Arg
        6630                2420                2425                2430
        6631   Gln Lys Gln Asn Ile Asp Gly His Gly Ser Asp Asp Ser Lys Asn Lys
        6632                2435                2440                2445
        6633   Ile Asn Asp Asn Glu Ile His Gln Phe Asn Lys Asn Asn Ser Asn Gln
        6634        2450                2455                2460
        6635   Ala Ala Ala Val Thr Phe Thr Lys Cys Glu Glu Glu Pro Leu Asp Leu
E--> 6636   2465                2470                2475                248
        6637   Ile Thr Ser Leu Gln Asn Ala Arg Asp Ile Gln Asp Met Arg Ile Lys
        6638                2485                2490                2495
        6639   Lys Lys Gln Arg Gln Arg Val Phe Pro Gln Pro Gly Ser Leu Tyr Leu
        6640                2500                2505                2510
        6641   Ala Lys Thr Ser Thr Leu Pro Arg Ile Ser Leu Lys Ala Ala Val Gly
        6642                2515                2520                2525
        6643   Gly Gln Val Pro Ser Ala Cys Ser His Lys Gln Leu Tyr Thr Tyr Gly
        6644        2530                2535                2540
        6645   Val Ser Lys His Cys Ile Lys Ile Asn Ser Lys Asn Ala Glu Ser Phe
E--> 6646   2545                2550                2555                256
        6647   Gln Phe His Thr Glu Asp Tyr Phe Gly Lys Glu Ser Leu Trp Thr Gly
        6648                2565                2570                2575
        6649   Lys Gly Ile Gln Leu Ala Asp Gly Gly Trp Leu Ile Pro Ser Asn Asp
        6650                2580                2585                2590
        6651   Gly Lys Ala Gly Lys Glu Glu Phe Tyr Arg Ala Leu Cys Asp Thr Pro
        6652                2595                2600                2605
        6653   Gly Val Asp Pro Lys Leu Ile Ser Arg Ile Trp Val Tyr Asn His Tyr
        6654        2610                2615                2620
        6655   Arg Trp Ile Ile Trp Lys Leu Ala Ala Met Glu Cys Ala Phe Pro Lys
E--> 6656   2625                2630                2635                264
        6657   Glu Phe Ala Asn Arg Cys Leu Ser Pro Glu Arg Val Leu Leu Gln Leu
        6658                2645                2650                2655
        6659   Lys Tyr Arg Tyr Asp Thr Glu Ile Asp Arg Ser Arg Arg Ser Ala Ile
        6660                2660                2665                2670
        6661   Lys Lys Ile Met Glu Arg Asp Asp Thr Ala Ala Lys Thr Leu Val Leu
        6662                2675                2680                2685
        6663   Cys Val Ser Asp Ile Ile Ser Leu Ser Ala Asn Ile Ser Glu Thr Ser
        6664        2690                2695                2700
        6665   Ser Asn Lys Thr Ser Ser Ala Asp Thr Gln Lys Val Ala Ile Ile Glu
E--> 6666   2705                2710                2715                272
        6667   Leu Thr Asp Gly Trp Tyr Ala Val Lys Ala Gln Leu Asp Pro Pro Leu
        6668                2725                2730                2735
        6669   Leu Ala Val Leu Lys Asn Gly Arg Leu Thr Val Gly Gln Lys Ile Ile
        6670        2740                2745                2750
```

```
        6671   Leu His Gly Ala Glu Leu Val Gly Ser Pro Asp Ala Cys Thr Pro Leu
        6672           2755                2760                2765
        6673   Glu Ala Pro Glu Ser Leu Met Leu Lys Ile Ser Ala Asn Ser Thr Arg
       .6674       2770                2775                2780
        6675   Pro Ala Arg Trp Tyr Thr Lys Leu Gly Phe Phe Pro Asp Pro Arg Pro
E-->    6676   2785                2790                2795                280
        6677   Phe Pro Leu Pro Leu Ser Ser Leu Phe Ser Asp Gly Gly Asn Val Gly
        6678           2805                2810                2815
        6679   Cys Val Asp Val Ile Ile Gln Arg Ala Tyr Pro Ile Gln Trp Met Glu
        6680           2820                2825                2830
        6681   Lys Thr Ser Ser Gly Leu Tyr Ile Phe Arg Asn Glu Arg Glu Glu Glu
        6682           2835                2840                2845
        6683   Lys Glu Ala Ala Lys Tyr Val Glu Ala Gln Gln Lys Arg Leu Glu Ala
        6684       2850                2855                2860
        6685   Leu Phe Thr Lys Ile Gln Glu Glu Phe Glu Glu His Glu Glu Asn Thr
E-->    6686   2865                2870                2875                288
        6687   Thr Lys Pro Tyr Leu Pro Ser Arg Ala Leu Thr Arg Gln Gln Val Arg
        6688           2885                2890                2895
        6689   Ala Leu Gln Asp Gly Ala Glu Leu Tyr Glu Ala Val Lys Asn Ala Ala
        6690           2900                2905                2910
        6691   Asp Pro Ala Tyr Leu Glu Gly Tyr Phe Ser Glu Glu Gln Leu Arg Ala
        6692           2915                2920                2925
        6693   Leu Asn Asn His Arg Gln Met Leu Asn Asp Lys Lys Gln Ala Gln Ile
        6694           2930                2935                2940
        6695   Gln Leu Glu Ile Arg Lys Thr Met Glu Ser Ala Glu Gln Lys Glu Gln
E-->    6696   2945                2950                2955                296
        6697   Gly Leu Ser Arg Asp Val Thr Thr Val Trp Lys Leu Arg Ile Val Ser
        6698           2965                2970                2975
        6699   Tyr Ser Lys Lys Glu Lys Asp Ser Val Ile Leu Ser Ile Trp Arg Pro
        6700           2980                2985                2990
        6701   Ser Ser Asp Leu Tyr Ser Leu Leu Thr Glu Gly Lys Arg Tyr Arg Ile
        6702           2995                3000                3005
        6703   Tyr His Leu Ala Thr Ser Lys Ser Lys Ser Lys Ser Glu Arg Ala Asn
        6704       3010                3015                3020
        6705   Ile Gln Leu Ala Ala Thr Lys Lys Thr Gln Tyr Gln Gln Leu Pro Val
E-->    6706   3025                3030                3035                304
        6707   Ser Asp Glu Ile Leu Phe Gln Ile Tyr Gln Pro Arg Glu Pro Leu His
        6708           3045                3050                3055
        6709   Phe Ser Lys Phe Leu Asp Pro Asp Phe Gln Pro Ser Cys Ser Glu Val
        6710           3060                3065                3070
        6711   Asp Leu Ile Gly Phe Val Val Ser Val Val Lys Lys Thr Gly Leu Ala
        6712           3075                3080                3085
        6713   Pro Phe Val Tyr Leu Ser Asp Glu Cys Tyr Asn Leu Leu Ala Ile Lys
        6714       3090                3095                3100
        6715   Phe Trp Ile Asp Leu Asn Glu Asp Ile Ile Lys Pro His Met Leu Ile
E-->    6716   3105                3110                3115                312
        6717   Ala Ala Ser Asn Leu Gln Trp Arg Pro Glu Ser Lys Ser Gly Leu Leu
        6718           3125                3130                3135
        6719   Thr Leu Phe Ala Gly Asp Phe Ser Val Phe Ser Ala Ser Pro Lys Glu
```

Input Set : **A:\G150581u.txt**
Output Set: **N:\CRF3\06252001\I084471B.raw**

```
6720                  3140              3145              3150
6721      Gly His Phe Gln Glu Thr Phe Asn Lys Met Lys Asn Thr Val Glu Asn
6722          3155              3160              3165
6723      Ile Asp Ile Leu Cys Asn Glu Ala Glu Asn Lys Leu Met His Ile Leu
6724          3170              3175              3180
6725      His Ala Asn Asp Pro Lys Trp Ser Thr Pro Thr Lys Asp Cys Thr Ser
E--> 6726  3185              3190              3195                320
6727      Gly Pro Tyr Thr Ala Gln Ile Ile Pro Gly Thr Gly Asn Lys Leu Leu
6728                  3205              3210              3215
6729      Met Ser Ser Pro Asn Cys Glu Ile Tyr Tyr Gln Ser Pro Leu Ser Leu
6730                  3220              3225              3230
6731      Cys Met Ala Lys Arg Lys Ser Val Ser Thr Pro Val Ser Ala Gln Met
6732              3235              3240              3245
6733      Thr Ser Lys Ser Cys Lys Gly Glu Lys Glu Ile Asp Asp Gln Lys Asn
6734          3250              3255              3260
6735      Cys Lys Lys Arg Arg Ala Leu Asp Phe Leu Ser Arg Leu Pro Leu Pro
E--> 6736  3265              3270              3275                328
6737      Pro Pro Val Ser Pro Ile Cys Thr Phe Val Ser Pro Ala Ala Gln Lys
6738                  3285              3290              3295
6739      Ala Phe Gln Pro Pro Arg Ser Cys Gly Thr Lys Tyr Glu Thr Pro Ile
6740              3300              3305              3310
6741      Lys Lys Lys Glu Leu Asn Ser Pro Gln Met Thr Pro Phe Lys Lys Phe
6742          3315              3320              3325
6743      Asn Glu Ile Ser Leu Leu Glu Ser Asn Ser Ile Ala Asp Glu Glu Leu
6744          3330              3335              3340
6745      Ala Leu Ile Asn Thr Gln Ala Leu Leu Ser Gly Ser Thr Gly Glu Lys
E--> 6746  3345              3350              3355                336
6747      Gln Phe Ile Ser Val Ser Glu Ser Thr Arg Thr Ala Pro Thr Ser Ser
6748                  3365              3370              3375
6749      Glu Asp Tyr Leu Arg Leu Lys Arg Arg Cys Thr Thr Ser Leu Ile Lys
6750              3380              3385              3390
6751      Glu Gln Glu Ser Ser Gln Ala Ser Thr Glu Glu Cys Glu Lys Asn Lys
6752          3395              3400              3405
6753      Gln Asp Thr Ile Thr Thr Lys Lys Tyr Ile
6754          3410              3415
```

VERIFICATION SUMMARY   DATE: 06/25/2001
PATENT APPLICATION: **US/09/084,471B**   TIME: 11:40:56

Input Set : **A:\G150581u.txt**
Output Set: **N:\CRF3\06252001\I084471B.raw**

```
L:5 M:220 C: Keyword misspelled or invalid format, [(1) GENERAL INFORMATION:]
L:16 M:220 C: Keyword misspelled or invalid format, [(ii) TITLE OF INVENTION:]
L:36 M:220 C: Keyword misspelled or invalid format, [(A) APPLICATION NUMBER:]
L:37 M:220 C: Keyword misspelled or invalid format, [(B) FILING DATE:]
L:75 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:94 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:115 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:122 M:111 C: (47) String data converted to upper case,
M:111 Repeated in SeqNo=3
L:1151 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:5
M:332 Repeated in SeqNo=5
L:1761 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6
L:2484 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:7
M:332 Repeated in SeqNo=7
L:2495 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7
L:3808 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:9
M:332 Repeated in SeqNo=9
L:5132 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:11
M:332 Repeated in SeqNo=11
L:6456 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:13
M:332 Repeated in SeqNo=13
L:6798 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:6818 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:6839 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:6860 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:6881 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:6902 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:6922 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:6944 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:6965 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
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L:7025 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7047 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7068 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7088 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7109 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7130 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7151 M:246 W: Invalid value of Alpha Sequence Header Field, [FEATURE:], SeqNo=33
L:7173 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7194 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7215 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7236 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7257 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7278 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7298 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7320 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7341 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7361 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
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VERIFICATION SUMMARY   DATE: 06/25/2001
PATENT APPLICATION: US/09/084,471B   TIME: 11:40:56

Input Set : A:\G150581u.txt
Output Set: N:\CRF3\06252001\I084471B.raw

L:7383 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7404 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7425 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7446 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7467 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7488 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7546 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7567 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7588 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7609 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7648 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7669 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7690 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7710 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7731 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7753 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]
L:7774 M:220 C: Keyword misspelled or invalid format, [(ix) FEATURE:]